

STATE LIBRARY OF PENNSYLVANIA



3 0144 00081028 3

C. 2

The Pennsylvania Game Commission

1895-1995

100 YEARS
of
WILDLIFE
CONSERVATION

By Joe Kosack

When European colonists arrived in what was to become the Commonwealth of Pennsylvania, they found an abundance and variety of wildlife. But the heavy influx of immigrants soon began to affect natural resources. By the late 19th century, people were clamoring for wildlife protection. Then, with the creation of the Board of Game Commissioners in 1895, came a governmental body whose sole purpose was to protect and manage the state's birds and mammals.

Pennsylvania Game Commission 1895-1995 puts the reader on commonwealth soil with the arrival of the first white settlers — long before the Game Commission existed. The wildlife-related events that unfold in the nearly four centuries that follow make fascinating reading.

As the colonists scrabbled to make a life in Pennsylvania, they competed with timber wolves and mountain lions for food animals such as deer and elk. Beavers, vital to early trade, in time vanished from the state due to overharvest — only to return several decades later through reintroduction efforts.

Loss of habitat and the commercial demand for meat led to the extinction of the passenger pigeon in 1914, a loss so incomprehensible that many people refused to believe it had happened.

After massive timbering in the early 1900s stripped the commonwealth of its once vast forests, there were so few deer that the Game Commission was forced to buy them from other states to stock them in Pennsylvania. In more recent times, the herd has grown to nearly a million animals, but the management of that resource has never proven an easy task.

Wildlife management has come a long way since the days when the agency paid

PY G192.2 P415gcy c.2
Kosack, 1

Kosack, Joe.

The Pennsylvania Game
Commission

Commission 1895-1995

DATE DUE

[illegible]

DEMCO NO. 38-298

PENNSYLVANIA STATE LIBRARY
DOCUMENTS SECTION



Digitized by the Internet Archive
in 2016

**The Pennsylvania
Game Commission
1895-1995**

*100 Years of
Wildlife Conservation*

By Joe Kosack

The Pennsylvania Game Commission 1895-1995

100 Years of Wildlife Conservation

Copyright ©1995 by the Pennsylvania Game Commission. All rights reserved. Published in the United States by the Pennsylvania Game Commission, Harrisburg, PA.



Printed on recycled paper

Contents

Foreword	i
A Land of Plenty	1
Vanishing Act	10
Not One Dollar	23
Quest for a License	40
A Push for Land	54
Great Migratory Highway	74
Answering the Call	97
“Our Deer Problem”	115
Science Takes the Reins	133
Selling the Farm	154
Back from the Brink	176
A Future for Wildlife	196
Acknowledgements	214
References	215
Appendix A — Executive Directors	218
Appendix B — Timeline	220
Appendix C — Deer/Bear Harvests	224
Index	226

Foreword

A CENTURY AGO, a group of people concerned about the fate of Pennsylvania's wildlife campaigned for a governmental body to protect the state's wild animal populations. Their efforts created the Pennsylvania Game Commission, which is charged with managing all birds and mammals in the commonwealth. Wildlife management is a complex blend of many fields — biology, sociology and political science, to name just a few. Some of its tools, techniques and theories have changed considerably in the 100 years since the Game Commission's inception, but as this book illustrates, the relationships between man and nature have remained relatively constant.

Wildlife is a resource, and as such there are demands — often conflicting ones — that go with it. The hunter wants game for the dinner table. The farmer expects animal populations to be kept at levels that allow his crops to grow and thereby permit him to make a living. The hiker — and a host of other outdoor recreationists we today group, perhaps misleadingly, as “nonconsumptive users” — hopes to glimpse a symbol of wilderness in a rapidly developing world of concrete, steel and glass.

This book tracks the fortunes of wildlife from the days when the first

white settlers set foot here. It examines the social and political climates that have influenced demands on natural resources, and it charts the course of the Game Commission's first century of service to wildlife and people.

Pennsylvania Game Commission 1895-1995 is the product of more than a year of exhaustive research, during which the author unearthed long-forgotten meeting minutes, speeches, correspondence, newspaper articles and other materials. The author was also quite fortunate to be able to interview many of the commission employees responsible for shaping management programs. These interviews, and feedback from agency staff past and present, give the book an authoritative strength that couldn't have been achieved using written sources alone.

One facet of wildlife management that is well-represented in these pages is hunting, once a necessity of daily life and now — to some of its practitioners, at least — a way of life. The Game Commission has long been synonymous with hunting, even though regulating what sportsmen may take and how long they may take it is but a part of the agency's mission. Hunting exists today because organizations like the Game Commission have accomplished their wildlife management goals: Hunting and trapping are permitted when game animals can sustain the removal of a certain percentage of their populations.

Since the first resident hunting license was established in 1913, hunters and trappers have funded wildlife management by paying for the privilege of taking animals for sport and food. Input from this segment of society has influenced the state's wildlife management goals and has helped guide the Game Commission to many successes — which have benefited all citizens.

There are more white-tailed deer in Pennsylvania today than there were at the turn of the century. The wild turkey, once in danger of disappearing from the state, now thrives in its historic range and in areas where once it was not commonly found. Nongame wildlife whose state populations were in jeopardy — bald eagles, ospreys and river otters, for example — were brought back through intensive restoration projects.

These are good examples of what can be accomplished through sound management practices, yet they tell only part of the story. As far back as 1905, just 10 years after the Game Commission was formed,

agency leaders recognized that the health of wildlife populations was completely dependent on the quantity and quality of available habitat. The commission began leasing land for “game refuges,” and in time it began buying property — establishing the state game lands system.

Game Commission holdings now total nearly a million and a half acres (a land base larger than the entire state of Delaware), which is an unparalleled achievement for a state wildlife management agency. The commission manages these lands for animals and people, and it is a task that requires lots of planning, labor and money. Game lands are not merely public hunting grounds; they are used extensively by hikers, anglers, mountain bikers, horseback riders, bird-watchers and others who enjoy the outdoors.

Land — more than any other factor — determines both the future of wildlife and the future of recreation we derive from wildlife. The demands for space and resources created by our ever-expanding human population dictate that outdoor recreationists of all stripes will be enjoying their activities on a shrinking land base. As development swallows up green, open spaces, more and more people will be competing for what’s left. That means additional wishes and opinions for the Game Commission to consider, sentiments it must take into account because of its charge to manage wildlife for *all* people of the commonwealth.

At the same time, human encroachment into what was once the home of animals brings increasing conflict between people and wildlife — bears destroying property, deer eating shrubbery, raccoons posing the threat of rabies, and other so-called “nuisance” problems. The conflicts translate into more responsibility for the agency, with attendant demands on finances and manpower. But history shows that the knowledge and dedication of the agency’s diverse staff has allowed the organization to develop innovative solutions to ever-changing problems.

It’s not likely the Game Commission could have achieved its successes without the support and assistance of thousands, even millions, of private citizens who care about the environment. Through contributions of time, money and expertise, individuals and private conservation organizations have helped make the Game Commission a leader in wildlife management.

It can be tough these days to be hopeful about the future of wildlife and the environment: Scientists say the earth is now losing species at a faster rate than at any time in recorded history. Pennsylvania has been fortunate. Since the agency was created 100 years ago, few species have vanished from the state; only one has met the ultimate fate of extinction. That's a testament to the convictions of the Game Commission, other state and federal agencies, conservation groups and everyday people. In that dedication to preserving wildlife, we can find hope for tomorrow. — *J. Scott Rupp, editor*

1



A Land of Plenty

WHEN EUROPEAN colonists arrived on the shores of the Delaware River around 1610, they found a wild land with an abundance of natural resources. The territory that would in time become the commonwealth of Pennsylvania — through Indian land purchases, squabbles with the colonies of Connecticut, Maryland and Virginia, and a survey by Charles Mason and Jeremiah Dixon — boasted no castles or courtyards.

Black bears, elk and white-tailed deer were common in the forests, much as they are today, but settlers also reported moose and even caribou in the swampy sections of northern hardwood forests. Herds of bison supposedly frequented the valleys of the Allegheny, Monongahela and Ohio rivers, and the state's heartland. Mountain lions and packs of timber wolves made their rounds along the ridges and waterways. Beaver dams and cuttings were familiar sights on most creeks, as were mink, muskrats, otters and raccoons. Wild turkeys and ruffed grouse were found in many areas of the American chestnut-dominated, deciduous forests, especially in the vicinity of clearings and burnt-over areas. The varied habitat in these areas also attracted gray foxes, opossums, groundhogs and various birds of prey.

In the Poconos, the greater prairie chicken, also known as the heath hen, scratched out an existence on the borders of forests inhabited by predators such as lynx, bobcats, fishers, martens and the occasional wolverine. Snowshoe hares, cottontails and a diverse rodent community shared the forested habitat.

The estuaries of what would be named the Delaware and Chesapeake bays teemed with sturgeon, salmon, striped bass and shad. Some reports suggest porpoises and seals swam in the Delaware Bay as far north as Marcus Hook. Interior rivers supported large populations of eels, catfish and suckers, and creeks and streams were filled with brook trout.

Europeans seeking a new life in the New World were not, of course, Pennsylvania's first human residents. Indians had been living here for centuries before the Europeans arrived. Delaware and Susquehannock tribes resided in eastern Pennsylvania when colonists settled along the Delaware. Erie, Monongahela and Wenro tribes made their homes in the western part of the commonwealth.

The arrival of settlers would soon change all that. In 1643, a year before William Penn was born in London, the Swedes established New Sweden on Tinicum Island (near Philadelphia). Five years later, the Dutch erected Fort Beversreede along the Schuylkill River. Neither settlement would last 20 years, but they served as Pennsylvania's first fur trading posts.

The settlers of the early Delaware River outposts reported seeing meadows covered with huge flocks of "white cranes" that rose in clouds when boats approached. Ducks and geese blanketed the water in flocks so huge that pioneers reported shooting large numbers with one shot. Eagles and ospreys commonly perched on snags along waterways. Flocks of passenger pigeons three to four miles long and a mile wide darkened the sky when they passed overhead.

The abundance of wildlife proved a valuable commodity to both the natives and their new neighbors. Beaver pelts were the most valuable item in America's growing fur trade with the Indians. Trappers also traded pelts from bear, deer, otter, fox, lynx, raccoon, mink and muskrat.

Prior to the arrival of Europeans in Pennsylvania, Indians took from nature only what they needed for food, clothing and shelter. Hunting was important, but no more so than farming chores or social duties. Because game was so abundant, Indians rarely walked more than a day to reach hunting grounds.

The Delaware tribe followed a somewhat seasonal schedule for harvesting wildlife. In January, they hunted bear, fox, beaver and raccoon, while in February they tapped maple syrup. They converged on passenger pigeon roosts in March or April, and from June to December, Indians hunted whitetails during breaks in farming.

But the simple lifestyles of Indians — relatively unchanged for more than 10,000 years — were vastly altered when the people were exposed to the products of advanced civilization. Knives and guns. Rum and linen. Pots and cups. Blankets and beads. To obtain the white man's goods, the natives began to harvest furbearers, particularly beavers, in larger quantities than they ever had.

It didn't take long for the early settlements, New Sweden for one, to become trading centers for the Indians. In June 1644, the *Fame*



William Penn arrived in Pennsylvania in October 1682, and within a month he'd begun signing treaties with local tribes. Penn found a land overflowing with natural riches.

sailed from the budding Swedish outpost with a payload of 2,142 beaver pelts.

The fur trade compelled tribes to spend more time pursuing furbearers and less on their usual seasonal tasks. Each year they had to travel farther to take furbearers and other animals, primarily because of overharvesting. They soon began to invade hunting grounds and territories of other tribes. Bloodshed followed as tribes clashed in battles known collectively as the "Beaver Wars."

During these wars, the Susquehannocks, a powerful tribe that bartered regularly with the Dutch and Swedes along the Delaware, began to decline because of constant attacks by the New York-based Iroquois Confederacy. Susquehannocks disappeared in central and northern Pennsylvania in 1679, three years before William Penn arrived. The Beaver Wars helped pave the way for colonization in Pennsylvania by scattering or eliminating Indians from the regions surrounding settlements that were springing up in southeastern Pennsylvania. The years of warfare, and exposure to diseases such as smallpox and measles, had effectively reduced the ability of the remaining Indians in southeastern and southcentral Pennsylvania to challenge the western movement of Europeans.

William Penn arrived in Pennsylvania on October 29, 1682, stepping ashore at a place called Upland, which he quickly renamed Chester. The natural wealth he found was often the subject of his correspondence.

"The food, the woods yield, is your elks, deer, raccoons, beaver, rabbets, turkeys, pheasants, heath-birds, pidgeons and patredge innumerable; we need no setting dogs to ketch, they run by droves into the house in cold weather," Penn wrote in a letter to the Earl of Arran on January 9, 1684. "Our rivers have also plenty of excellent fish and water fowl as sturgeon, roe shad, herring, cadfish, or flatheads, sheeps heads, roach and perch; and trout in inland streames. Of fowle, the swan, white, gray and black goose and brands, the best duck and teal I ever eate and the snipe and curloe with the snow bird are also excellent."

Penn wrote in other correspondence, ". . . the elck as big as a small ox; deer, bigger than ours; very plentiful deer, beaver, raccoon and squirrels."

Almost everything Penn's Woods offered was finer than what was

available in Europe. “I have had better venison, bigger, more tender and as fatt as in England,” Penn wrote in a July 28, 1683, letter to the Earl of Sunderland. “Turkys of the wood, I have had of 40 to 50 pound weight.”

Until the day William Penn died (July 30, 1718), he wrote and spoke about his province’s riches. He told whomever would listen of the “living creatures and beasts,” “sweet and clear air,” “mineral waters” and “multitude of trees.”

The state’s earliest conservation law was part of Penn’s 1681 “Conditions or Concessions to the First Purchasers” of Pennsylvania land, which required settlers to leave one acre of trees for every five acres cleared. The condition, one of 20, was an attempt to preserve oak and mulberry for silk and shipping.

Two years later, Penn proclaimed that inhabitants of the province could “. . . fowl and hunt upon the lands they hold and all other lands not enclosed . . .” The state’s first wolf bounties — 10 and 15 shillings — were also adopted in 1683. The bounties were fairly generous; the average workman’s wage was 12 to 15 shillings per week. Bounties would be placed on wolves at various times for more than 200 years.

Settlers didn’t tolerate predators such as timber wolves, mountain lions and black bears, and they singled out wolves as a particularly



The Bettman Archives

Wolf packs existed in Pennsylvania up until the late 19th century. Aside from killing elk and deer that colonists wanted to eat, wolves also treed the occasional settler.

bothersome enemy because the animals were relatively plentiful compared to bears and the big cats. Wolves also ran in packs, which made them seem more menacing than solitary predators. Persecuted though they were, wolves managed to survive in the commonwealth for two centuries following the arrival of the Europeans.

“The sagacity of the wolves bids defiance to the most consummate craft of hunters, many of whom, throughout life, never obtained a single chance to shoot at one of them,” wrote Joseph Doddridge, an 18th century southwestern Pennsylvania author. “Sometimes, indeed, they outwitted them by pitfalls and steel traps, but no great number were killed by either of these means, nor had the price set upon their scalps by the state legislatures any great effect in diminishing their number or depredations. . . .”

Over the next 30 years, an endless stream of Europeans — attracted by the words of Penn and others — converged on frontier Philadelphia with hopes of staking a claim in Penn’s Woods. By 1714, the province’s population is estimated to have been more than 60,000. There were an estimated 100,000 people in 1740, and at least 300,000 by 1776.

Deer apparently remained abundant in many sections of the province throughout the early part of the 18th century. In 1712, the Delaware Indians presented 120 deer skins to the lieutenant governor and Provincial Council. In 1735, a group of Indians, including Conestogas and Shawnee, presented 163 deer skins, two bear skins and four raccoon pelts to the council.

As more and more people settled in the province, it became apparent that the harvest of wildlife would have to be restricted. On August 26, 1721, the state’s first hunting regulations were enacted by Provincial Governor Sir William Keith. The regulations protected “buck, doe, fawn, or any other sort of deer whatsoever” from January 1 to July 1. The fine was 20 shillings. Indians were exempt.

The regulation packet also placed restrictions on hunting in Philadelphia: “. . . no person whatsoever shall presume to shoot at or kill with a firearm any pigeon, dove, partridge or other fowl in the open streets of Philadelphia, or in the gardens, orchards and inclosures adjoining upon or belonging to any of the dwelling houses within the limits of the said city.” The fine was five shillings.

Lastly, the packet limited where people could hunt. It contained a regulation making it illegal to carry a gun or hunt on “the improved or inclosed land of any plantation other than his own” without license or permission from the owner. The law applied to people who did not own at least 50 acres of land or 50 pounds of other property, a standard established to determine if a person could vote.

As people continued to pour into Pennsylvania, the commonwealth’s proprietors aggressively worked to obtain lands from the tribes through treaties and trades. The land was subsequently sold in parcels to the settlers. Some pioneers simply squatted on provincial land until its resources were tapped or they were chased from it.

By 1740, property purchases from natives included lands south of the Blue Mountain, north along the Delaware River to present-day Pike County, and west to the areas that would become Franklin and Cumberland counties.

The influx of people soon taxed the province’s resources. Deer, a primary food source for many, were becoming increasingly difficult to harvest in Pennsylvania’s colonized sections by the mid-1700s. A new deer season, running from August 1 to December 1 was established in 1749. Hunting for any game on Sundays, except in “cases of necessity” was also prohibited. The fine for failing to comply with either of these statutes was 40 shillings.

The conversion of Penn’s Woods to agricultural lands brought problems even as it provided food for the growing country. Squirrels, now without the food base provided by mast-producing trees, began to feed on farmers’ crops. The squirrels’ impact was so great that a bounty of three pence a head was placed on them in 1749. In response, laborers throughout the province dropped their farming tools and picked up rifles and clubs. They could make more money squirrel hunting than working in a shop or on the farm. Bounty was paid on more than 640,000 squirrels harvested in an area that today would roughly correspond to Bucks, Chester, Delaware, Montgomery and Philadelphia counties.

The minutes of the 1750 Pennsylvania General Assembly reflected farmers’ displeasure with the bounty and the stir it created. “The

farmers complained this year that the bounty given for squirrels had tended to their injury, for the labourers, instead of helping them with their harvest, had taken up their guns and gone to hunt squirrels, as they could make more by squirrel scalps than by wages at day labour." The three pence bounty was quickly cut in half.

The Indians, meanwhile, were being pushed north and west. They were followed in their emigrations by Pennsylvanians representing English interests who wished to continue or establish fur trading arrangements. By the mid-1700s, French settlers in the Great Lakes region and Pennsylvania traders were involved in intense competition for furs harvested by natives in the province's western river valleys. The rivalry erupted into the French and Indian War of the mid-1750s.

To reduce tensions between colonists and Indians, a statute was approved in 1760 making it illegal to hunt or trap on Indian lands. But the law apparently didn't do much to improve relations or solve the problems occurring on Indian lands. In 1763, Indians were united by Ottawa Chief Pontiac to dislodge the pioneers west of the Alleghenies. The uprising, although initially successful, was short-lived. By 1765, tranquility had returned to the outposts and settlements along the commonwealth's frontier.

The province's largest land purchase from the tribes occurred in 1768 with the Treaty of Fort Stanwix. The purchase, which essentially doubled the size of the province, included most of the present-day southwestern and northeastern counties, and portions of northcentral counties. The remainder of the state was purchased from Indians in the Last Purchase of 1784 and a deal for Lake Erie frontage in 1792.

By the mid-1700s, settlements had extended north and west to areas in the vicinity of Waynesboro, Duncannon and Stroudsburg. The expansion pushed many wildlife species from their historic ranges. Deer and bears were rare in Philadelphia and Chester counties by the 1770s, and beavers had disappeared. Timber wolves were routed from the southeast; the last one in the area was supposedly killed in dense woods near Valley Forge in 1780. Reports indicate otters were seen in the southeast until about 1800.

As Pennsylvanians plunged into the Revolutionary War, the authors of our state's first constitution made it clear that hunting and fishing were important rights. "The inhabitants of this state shall have

liberty to fowl and hunt in seasonable times on the lands they hold, and on all other lands therein not enclosed; and in like manner to fish in all boatable waters, and others not on private property.”

After the war, which ravaged settlements in many areas, pioneers headed back to the frontier. Many traveled north on the Susquehanna River, west on the Juniata River or into the lands west of the Allegheny Mountains. Some were farmers, some were merchants and craftsmen. Others were fortune-seekers looking to get rich off natural resources. There were few obstacles to discourage the ransacking and wanton destruction of resources that was about to erupt in Penn’s Woods.

2



Vanishing Act

TRANSPORTATION held the key to Pennsylvania's rapid growth. The state's major rivers allowed cities such as Harrisburg, Pittsburgh and Philadelphia to prosper and attract more people. Canals and railroads meant more and larger goods could be shipped around the state, and by 1804 a stagecoach line linked Pittsburgh and Philadelphia.

The spread of civilization may have proved to be too much for one species believed to have lived in Pennsylvania. The last bison was reportedly killed in 1801 by Colonel John Kelly about five miles from Lewisburg in Union County. There is some disagreement over whether buffalo lived in Pennsylvania because no skeletal remains have ever been found. If buffalo did exist here, they were among the first animals to vanish from the state. They were not the last.

Market hunting — the practice of killing and then selling wildlife — became a booming business. As communities grew, wildlife surrounding the towns became scarce, making it difficult for the average person to harvest his own meat. The market hunters, who lived away from the settlements, supplied meat by taking deer, elk, bear and other animals. They transported their goods by wagon or canoe.

The fur trade was also lucrative. Settlers used guns, deadfalls, snares, pits, pens and crude steel traps to take furbearing animals. They frequently set their traps in den entrances — an unlawful practice for the taking of most furbearers in modern times — and continued taking animals until none were left. Pelt prices in 1804 were: bear, \$1 to \$3.50; beaver, \$1 to \$2.50; otter, \$1.50 to \$4; red fox, \$1 to \$1.10; mink, 20 to 40 cents; and muskrat, 25 to 30 cents.

Some of the best examples of early 19th century life in Penn's Woods are found in the writings of Philip Tome, a pioneer who hunted throughout northcentral Pennsylvania in the early 1800s. In his book, *Pioneer Life or Thirty Years a Hunter*, he spins tales of a man who made his living off the land and wildlife — particularly elk, which he killed for meat and captured for use in sideshows.

Like many 19th century hunters, Tome frequently pursued the big animals with hounds. The dogs chased the elk toward hunters or followed one until it tired and made a stand on a large rock, often called an "elk rock." If Tome was trying to take a bull alive, he'd slowly approach the animal and attempt to lasso its antlers. Capturing elk was often difficult. For instance, in 1811 Tome and four men pursued an elk with "antlers five and a half feet long" until it took a post on a boulder along Kettle Creek. The elk escaped, but the dogs quickly forced it to return.

"In a short time, [the elk] came bounding back, and again took his station on the rock," Tome wrote. "We found that we could not rope him while he remained on the rock, and we therefore withdrew and allowed him to come off. He went down to the creek, when I cut a large club and went on the rock, telling the others to drive the elk back. They let the dogs loose, and he came toward the rock.

"As he passed me, I gave him a blow with the club, which made little impression on him, when I gave him two more with all my strength, which dropped him to his knees. He rose, wheeled around and went to the lower side of the rock, against which he backed himself and stood warding off the attack of the dogs.

"I took a rope to the part of the rock which overhung the elk, and threw it over his horns, drawing it close down to his head. We then attached the other end of the rope to a tree, and proceeded to build around him a pen of logs, 10 by 22 feet square, and 12 feet high."

Boulders that once served as elk rocks can be found from the Allegheny Mountains to the Poconos. Pioneers often were able to identify them by the bleached, skeletal remains of wolves and elk surrounding them.

“I have more than once found dead wolves lying about one of these elk rocks, telling mutely, but eloquently, the tragic story of the pursuit of the elk by wolves, his coming to bay on the rock, the battle and the elk’s victory,” wrote W.J. McKnight, author of *History of Northwestern Pennsylvania*. “The elk was not always the victor, though, in such battles with wolves, and I have frequently found the stripped skeleton of one lying among the skeletons of wolves he had killed before being himself vanquished by their savage and hungry fellows.”

Wolves certainly had an impact on the settlers’ lives. Packs of them preyed on sheep and other livestock. They also had a habit of digging up buried bodies not sufficiently covered with rocks. In more remote areas, packs reportedly chased travelers and treed them.

“Many men have been overtaken by night at a distance from home, and sometimes only a short distance, and have been forced to climb



Deer and elk were often taken at night through “jacklighting,” using a boat and a torch made from jack pine pitch. Animals would be transfixed by the light, giving the man in the bow of the boat time to shoot.

trees to get out of reach of wolves and sit there all night,” Henry B. Plumb wrote in his *History of Hanover Township and the Wyoming Valley*. “As the morning sun began to give a little light the wolves would sneak off one by one until they were all gone and the shivering traveler could come down and go home.”

Men like Tome regarded wolves as deer-hunting allies, although they could make profits on the wild canids during times when wolf bounties were offered. Wolves and Tome’s dogs frequently hunted together, “. . . sometimes one and sometimes the other obtaining the deer. If it fell into our hands we always left the wolves their portion to keep them near, for we considered them a great assistance to us in hunting. As there was no bounty on wolves at that time, and we had no sheep for them to kill, we never destroyed them. They often aided us in three to four deer in a week.”

In many parts of the state, mountain lions also preyed on livestock and deer, prowled around cabins, and occasionally followed people. The big cats quickly became unpopular; mountain lion bounties first surfaced in 1802. Adults brought \$8, juveniles, \$2.50.

Panther stories are common in 19th century Pennsylvania writings. Many settlers considered the cats cowardly because they would often flee or tree when they heard a dog bark. Nonetheless, mountain lions were respected because they were the state’s largest predators. Killing mountain lions was a public service in the minds of settlers, a feat worthy of recognition. But for all the trouble these large animals supposedly caused, there is not one authentic report of a Pennsylvania mountain lion attacking anyone.

From 1808 to 1820, Luzerne County paid \$1,822 in bounties for mountain lion scalps. The bounty per cat ranged from \$8 to \$12. The county’s largest annual kill during this 13-year period was “upwards of 50.” In 1834, the Sullivan County treasurer’s report indicated \$300 was paid for wolf and mountain lion scalps.

The bounties being offered for wolves and panthers made the hardships associated with killing these large predators worthwhile. Some men dug pits or built box pens or deadfalls. Others set bear traps, hunted by dens or used a live animal to lure the predators to within shooting range. Hunting with dogs, from scaffolds, in circle hunts and following tracks in snow were also popular.

As the 1800s unfolded, the increasing human population and demand for meat began to take its toll on other wildlife. Elk were exterminated in southeastern Pennsylvania and rare west of the Allegheny River and in the Blue Ridge and Cumberland mountains by the beginning of the 19th century. By the late 1840s, they had disappeared from the southwestern part of the state and from the Pocono Plateau. By the 1850s, what remained of Pennsylvania's once mighty elk population was limited to sections of the northcentral — predominantly Cameron, Elk and McKean counties.

The state's deer herd was also suffering from the effects of nearly unregulated hunting. Hunters of the era wrote of shooting three deer with one shot, seven in a day, 100 in one fall. The harvest methods varied from jacklighting (hunting at night from a boat with the aid of a torch smeared with jack pine pitch; deer and elk were transfixed by the light, allowing hunters time to shoot them) to hunting over salt licks to using dogs. The demand for venison was always high. What pioneers didn't sell or trade, they salted and jerked for food.

The concern over deer populations heightened with each passing decade. In the August 9, 1828, issue of *The Register of Pennsylvania*, state Senator William G. Hawkins, who sat on the judiciary committee, reported Potter County residents had circulated a petition calling for game laws.

The residents asked for "passage of a law to prevent all persons, except actual residents or the holders of lands, houses, or tenements, in the county of Potter, from killing or destroying any deer therein, at any period of the year whatsoever. . . ."

The judiciary committee dismissed the petition: "To give the residents, and land holders of Potter County, the sole and exclusive right of taking and destroying game within the limits of that county . . . would be one step towards destroying that equality of privilege which it is the pride and boast of this country to enjoy."

By the late 1830s, most of Pennsylvania was settled, and by 1840 its population was estimated at three million. Industry began to take hold, primarily coal, iron, timber, textiles and charcoal. Along with prosperity came signs of increasing stress on the environment. Creeks turned orange from acid mine discharges. Sewage and industrial effluents began to kill fish. Razed forest lands suffered heavy erosion, and

critical wetlands were filled to accommodate human expansion and agriculture.

Improving technology also had an impact on resources. Market hunters benefited from inventions such as the punt gun, a small cannon usually mounted on the bow of a boat and fired by a lanyard. Market hunters would sneak up on flocks of resting waterfowl, point the bow toward them and set off the gun, which was capable of killing as many as 100 ducks with a single shot. The percussion cap muzzleloader began replacing its less dependable flintlock predecessor. Modifications to steel traps made furtakers more efficient. Railroad systems provided market hunters a quick way to get game to population centers before it spoiled during warm weather, and the railroad companies themselves were dependable customers for wild game, which they used to feed workers who were laying track.

In the 1840s, a flurry of wildlife-related legislative activity surfaced in the state capitol. Residents apparently were concerned over the state's dwindling wildlife; animals such as the greater prairie chicken (and possibly the buffalo, too) had already been extirpated from the commonwealth.

Deer and "small insectivorous birds" received most of the attention. A law permitting only Pennsylvanians to harvest deer in Monroe, Pike and Wayne counties was passed in 1840. Five years later, it was unlawful to chase or hunt "unwounded deer" with dogs in Warren County. In 1848, deer hunting with dogs was banned in Butler, Carbon, Dauphin, Elk, Huntingdon, Luzerne, Mifflin, Monroe and Pike counties. In 1851, deer hunting was closed for five years in Cumberland and Franklin counties. The deer season in Adams County was also closed for five years, beginning in 1856.

The movement to protect Pennsylvania's birds seems to have begun in several southeastern counties as early as 1841. That year it became illegal to kill songbirds from April 1 to August 10 in Chester County and certain townships of Delaware, Lehigh, Montgomery, Northampton and York counties. Two years later, it was unlawful to kill "robins, flickers, bluebirds, woodpeckers, thrush and other insectivorous birds" in Allegheny and Franklin counties.

Counties continued to adopt their own bird-protection statutes, and then in 1858 the General Assembly approved Act 406, a state law making it unlawful to kill any “bluebird, swallow, martin or other insectivorous bird,” or to take eggs or destroy nests. For the next four decades, the state would increase legal protection for a variety of bird species.

Pennsylvania’s wildlife got a short reprieve when America plunged into its Civil War. Young men flocked to enlist in a war that spanned four and a half years. But not even the reduced hunting pressure during this period could help some species. Their extinctions were simply a matter of time.

As the ink dried on Lee’s surrender papers at Appomattox in April 1865, a few native elk still lived in Elk and Cameron counties. But within two years, the last one was supposedly killed by an Indian named Jim Jacobs not far from St. Marys.

The once-powerful packs of wolves that roamed the state had been



The disappearance of the passenger pigeon stands as one of the most remarkable cases of extinction in the United States. Passenger pigeons once numbered in the millions, their flocks darkening the skies. By the early 1900s, they were gone.

reduced to singles and pairs. And because wolves depend on numbers to hunt large game such as deer and elk — whose numbers were also dwindling — they soon began taking more domestic animals. This brought wolves into increasingly frequent, and often fatal, contact with humans. Timber wolves were shot on sight, and the last one is believed to have been killed in the 1890s.

Mountain lion populations were limited to remote areas by the latter part of the century. The last panther bounty was paid for an 1886 Centre County claim. Several researchers have listed mountain lions being killed in the state from 1887 to 1914, but the reports are not supported by physical evidence.

One of the most famous cases of extinction in Pennsylvania — indeed, the whole country — was the disappearance of the passenger pigeon. At one time, the birds numbered in the millions. Abraham R. Beck of Lititz provides a vivid description of an immense flock that passed over the town in the spring of 1846:

“The dense mass of pigeons extended overhead seemingly — beheld in perspective — to the eastern horizon, and as far north and south as the eye could reach; and was continuous from about 12:30 to 4:30 p.m.,” Beck wrote.

By the close of the 19th century, the continent’s seemingly infinite supply of pigeons had dwindled to a handful. The Indians had been raiding passenger pigeon roosts long before the Europeans arrived. They sometimes camped near the roosts for weeks, eating squab, smoking and drying pigeon meat, and making “squab butter.” Subsistence hunting by settlers also had had little effect on pigeon numbers, but improvements to the state’s transportation system soon brought market hunting pressure to bear on the birds. Pigeon meat could be shipped more quickly to the cities, and with the telegraph to send word of the pigeons’ movements and trains to bring in market hunters, hundreds of men converged on the rookeries. Another major contributing factor was the clearing of the state’s forest to meet the demand for timber and farmland. The deforestation destroyed pigeon nesting and roosting habitat.

Some of the state’s largest pigeon roosts were found in the northwestern counties. Huge rookeries were located near Kane, Oil City, Pigeon, Sheffield, Brookston and Conneaut and Pymatuning marshes.

In these nesting areas, which were often reported to be up to a mile long and half a mile wide, the birds would pile into the trees to the point where tree limbs would break. It wasn't uncommon to see 50 to 100 nests in a tree.

Market hunters pursued the birds during spring and fall migrations, shooting at flocks that sometimes stretched for miles. They also took birds from the roosts with clubs, poles, nets, sulfur pots and fire.

Passenger pigeon numbers began to slip in some areas during the mid-1800s, but few people were concerned because the pigeons still seemed plentiful. But the bird protection movement sweeping the country during this period apparently compelled some Ohioans in 1857 to petition their state legislators to protect wild pigeons. A state senate panel did not agree with the citizens' sentiments:

"The passenger pigeon needs no protection. Wonderfully prolific, having the vast forests of the North as its breeding grounds, traveling hundreds of miles in search of food, it is here today and elsewhere tomorrow, and no ordinary destruction can lessen them, or be missed from the myriads that are yearly produced."

In 1873, the Pennsylvania General Assembly adopted a legislative package consolidating wildlife laws. One law prohibited the discharge of a firearm within a quarter-mile of a wild pigeon rookery or to shoot at roosting pigeons. The fine was \$25. The measure proved ineffective because it was largely ignored. Another law, adopted in 1881, banned



As railways made it easier to ship birds to the cities, and faster to get hunters to where large numbers of birds were roosting or migrating — news of which could now be carried via telegraph — the commercial demand for passenger pigeon meat soared.

the discharge of firearms within one mile of a pigeon roost or the removal of squabs from nests. It, too, was disregarded.

In an article titled "How the Passenger Pigeons Came to an Untimely End," Dr. Benjamin H. Warren, who would later become the Pennsylvania Game Commission's first executive secretary, interviewed a Lewisburg resident who witnessed a pigeon roundup in the northwestern part of the state.

"On May 11, 12 and 13, 1880, I saw near Kane, McKean County, hundreds of young wild pigeons killed with clubs, mornings and evenings as they flew in long lines in an open passageway cut through brush and trees for a pipeline," the shooter told Warren. "These birds flew by the thousands about six to 12 feet above the ground, in almost a continuous line. . . . Men stationed themselves along the line and killed the birds as they passed with clubs. Guns were not used, clubs were more effective. Birds slaughtered in this manner were carried off in wheelbarrows and by wagon loads."

By the early 1880s, passenger pigeons were nesting only sporadically in Pennsylvania. Within 10 years, they became a rare sight everywhere in the eastern United States, although sightings continued to be reported as late as 1909 in Crawford, Lancaster and Dauphin counties.

William Hornaday seemed to capture the confusion surrounding wild pigeons in his early 20th century writings. "The passenger pigeon millions were destroyed so quickly, and so thoroughly en masse, that the American people utterly failed to comprehend it, and for 30 years obstinately refused to believe that the species had been suddenly wiped off the map of North America."

Some people theorized the birds had begun migrating to Mexico and South America. Some believed a terrific windstorm blew great flocks to sea, where they perished. Some believed deforestation was solely responsible for the bird's demise. But those people familiar with wild pigeons knew it was loss of vital habitat coupled with excessive hunting and trapping that had caused the extinction. The last passenger pigeon on the face of the earth died in the Cincinnati Zoo in 1914.

Waterfowl was also suffering from market hunting. In 1864, the legislature banned duck shooting in any county bordering the Susquehanna River and its tributaries on Tuesdays, Thursdays and

Fridays, and between April 1 and September 1. The legislators established other waterfowl seasons over the next 20 years, but they were loosely enforced.

Punt guns were outlawed for waterfowl in 1873. Ten years later, it was unlawful to chase or hunt waterfowl in any "craft or boat propelled by steam or sails." None of the laws worked; there was no one to enforce them.

The General Assembly also was trying to keep songbirds out of stews and potpies. In 1873 the state passed a law making it illegal to kill, sell or possess any insectivorous bird (at a fine of \$5 per bird). The assembly also made it illegal to disturb nests or eggs, subject to a \$10 fine. Exempt from both laws were "predatory birds as are destructive of game or insectivorous birds." Like the game laws, these pieces of legislation did little to help their intended targets.

In 1869, the legislature set a new deer season, running from September 1 to December 31. But 15 counties were exempted from the provision because they had their own seasons or didn't permit deer hunting. Four years later, the General Assembly made it illegal to kill a deer "when in its spotted coat." In 1876, deer season was shortened



Deer had become so scarce by the late 1800s that many people stopped hunting them. Those who did, typified by this group of Clearfield County hunters, found little.

from four to three months (October 1 to December 31). In 1895, the season went to just two months (October 15 to December 15) as deer populations continued to decline.

Deer had become so scarce by the end of the century that people began to stop hunting them because it seemed a waste of time. John M. Phillips, a prominent Pittsburgh businessman who would become one of Pennsylvania's foremost conservationists, related the following tale to the 14th American Game Conference in New York City. It concerned a deer hunt he and a friend had made in the Alleghenies between Ridgway and Brockway. The story begins with them jumping a buck in the morning.

"About six inches of snow had fallen, so we tracked it all day, camped on the trail that night, followed it all the next day then rested over night at the town of Brockwayville. In the morning, we took up the trail again and succeeded in jumping and killing the buck. During all that long chase, we didn't cross another deer track. I said to my friend, 'I am done — I think I have killed the last deer in Pennsylvania.' "

At first, small game populations — rabbits, grouse and squirrels — remained stable because much of Pennsylvania's wooded landscape became agricultural and residential areas. Good small game hunting was still available within 20 miles of Philadelphia as late as the 1860s. But as big game hunting opportunities declined, more hunters went after other species.

It wasn't long before people began to notice the effect that changing hunting patterns were having on small game. In response, the General Assembly passed the 1885 Scalp Act, which placed a 50-cent bounty on weasels, mink, gray and red foxes, and all hawks and owls — except saw-whet, screech and barn owls. Public response was overwhelming, and people quickly began killing large numbers of predators. But problems soon arose. Fraudulent claims were widespread, and coffers to pay the bounties soon dried up. Complaints about rats and mice escalated as hawks, owls and foxes disappeared.

By 1887, the state legislature had heard enough about the Scalp Act's shortcomings and repealed it. During the two years of the act, an estimated 180,000 birds of prey were killed. Bounties were not placed on raptors again until 1913.

By the late 1880s, many hunters thought the state's game populations had bottomed out. The talk at trapshoots and social gatherings frequently turned to the need for good game laws and someone to enforce them.

"In 1890, the game had practically disappeared from our state," John Phillips said. "We had but few game laws and those were supposed to be enforced by township constables, most of whom were politicians willing to trade with their friends the lives of our beasts and birds in exchange for votes."

On August 22, 1890, H.A. Penrose, owner of Corry's Keystone Manufacturing Company, which made clay targets and traps, asked several influential men he knew from trapshooting circles to meet with him to discuss ways to help Pennsylvania's waning game populations. Some of the men who attended the meeting included Elmer E. Shaner of Slippery Rock, and Phillips. They agreed to establish an organization dedicated to promoting wildlife conservation and enforcing game laws. They named their organization the Pennsylvania State Sportsmen's Association.

Theirs was just another group that was part of a growing movement in America to safeguard wildlife and improve game populations. Men like Theodore Roosevelt and George Bird Grinnell, editor of *Forest & Stream*, the country's most popular sportsman's magazine, were already busy trying to convince government that natural resource conservation was vital. They realized that deforestation was having a profound effect on the state's wildlife, as were extensive hunting and trapping, the loss and degradation of wetlands, and water pollution. They knew important breeding areas were being ruined by agriculture and development. They knew action had to be taken.

3



Not One Dollar

THE PENNSYLVANIA State Sportsmen's Association set out to find a powerful politician who would support the creation of a game agency similar to governmental bodies established in Massachusetts, New Hampshire and South Dakota. John Phillips was asked to lobby for the agency. He started with his friend U.S. Sen. Matthew Quay, a prominent Republican from Beaver.

Phillips told Quay the commonwealth desperately needed a game commission. But unlike what had been set up in other states, the association wanted Pennsylvania's agency to have non-political commissioners and be financed through the sale of hunting licenses; he suggested it should also be empowered to enforce wildlife laws.

Although many association members thought legislation of this sort would quickly gain approval, Quay apparently sensed trouble. He told Phillips he couldn't support a game commission bill. Phillips believed Quay feared the creation of a game commission might encourage sportsmen to organize a powerful lobbying group, one that could "likely upset" Pennsylvania politics.

Phillips and the association refused to quit. They continued to call for a game commission; legislators continued to ignore them. The

impasse attracted more attention when another group, the Pennsylvania Fish and Game (Protective) Association of Philadelphia, joined the campaign. But the stalemate went on. After a few years, sportsmen eventually persuaded Rep. George Kunkle of Dauphin County to introduce a bill creating a six-member game commission that would employ one chief game protector and nine game protectors. The commissioners, who would be compensated only for traveling expenses, were to be appointed by the governor; game protectors would be named by the commissioners. The bill set the annual salary for the chief game protector at \$900 plus \$500 for expenses and game protectors at \$300 plus \$200 for expenses.

During the bill's second reading in the House, dozens of legislators, especially those representing agricultural areas, voiced their opposition. Most had reservations about paying commissioners' traveling expenses and game protectors' salaries.

According to one newspaper account, Rep. Frank "Farmer" Moore opposed any increase in the expenses of the state. He offered an amendment striking the payment of salaries and expenses. It wasn't accepted.

Kunkel continued to push the bill. "I introduced this measure at the request of the state sportsmen's association, which has a membership in every county of the state," he told legislators. "Its members have sent thousands of petitions here asking for its passage, and it is but right that the legislature should comply with their request."

While the vote was 90 to 59 in favor of the legislation, the bill failed to secure a "constitutional majority" on its second reading and was defeated. But two days after the vote, Kunkle apparently agreed to accept Moore's amendment and the bill passed. On June 25, 1895, Governor Daniel H. Hastings signed it into law.

On November 17, 1896, almost a year and a half after the Board of Game Commissioners (as the Pennsylvania Game Commission was then known) was created by legislation, Hastings selected "six competent citizens" to serve as commissioners. They were William M. Kennedy, Allegheny City; Charles Heebner, Philadelphia; Irving A. Stearns, Wilkes-Barre; James H. Worden, Harrisburg; E.B. Westfall, Williamsport; and Coleman K. Sober, Lewisburg.

Three weeks after their appointment, the commissioners met in

Harrisburg to organize their board. During the meeting, they chose state zoologist Dr. Benjamin H. Warren of West Chester as “temporary secretary.” He and commissioners Heebner and Worden were charged with drafting wildlife legislation, and their committee proposed a “universal game season” for all huntable species, running from October 15 to December 15. They also recommended a ban on the sale and interstate transportation of Pennsylvania deer, wild turkeys, grouse and quail. Neither proposal received much interest or support when submitted to the General Assembly.

The commissioners didn’t appoint any game protectors at the meeting. Although they believed game law enforcement was necessary to help the state’s wildlife resources, they were reluctant to hire field officers because they couldn’t pay salaries. A provision in the new game law did allow game protectors to claim half the fines they levied against violators, but the commissioners felt such a system would generate public distrust: Game protectors could earn more money by arresting a lot of people.

So although the commission was in place, it had no money and no one to do its law enforcement work. The governor gave the commissioners a House committee room to hold their meetings, but even that was lost within two months when fire destroyed the capitol. And the fledgling agency was further hampered in accomplishing its agenda when Dr. Warren was accidentally shot while hunting in late December 1896. Warren was struck in the forehead by a few shotgun pellets but was otherwise unharmed. He was shot by a hunting companion named Sober, but it’s not known whether it was Commissioner Coleman Sober.

It wasn’t until 1897 that the General Assembly finally appropriated some money to the board for game administration — \$800 to be used only for postage. The legislature expected the appropriation to last the board two years. The commissioners and their friends dug into their pockets to pay the young organization’s bills.

In the spring of 1897 the General Assembly approved, and the governor signed, a packet of game laws that were either advocated or sought by the commissioners. One measure outlawed hunting deer

with hounds or over salt licks. It banned spring waterfowl hunting and nighttime grouse hunting. Game birds could no longer be sold and daily bag limits were established for ruffed grouse, 10 per day; quail, 15; woodcock, 10; and wild turkey, 2.

The board had yet to appoint game protectors. Constables were empowered to enforce game laws, but few of them bothered and some were themselves market hunters. Most people considered wildlife law offenses trivial, and constables often looked the other way as friends broke game laws. The Board of Game Commissioners began its law enforcement efforts in September 1897 by notifying every constable in the state that it was their duty to enforce game laws. Two weeks after the notices went out, the board appointed seven game protectors and authorized commissioners Westfall and Worden to select two more. The commonwealth was carved up into nine districts, one protector to a district.

The board also made an unprecedented move in October 1897 when it empowered itself to appoint deputy game protectors. The commissioners knew there was no way nine people could enforce laws throughout the vast commonwealth. The action, made by resolution, had not been approved by the legislature — a risky course for a fledgling organization looking to increase its funding. There's no record of the General Assembly opposing the resolution, but it took six years before the first deputy was appointed.

In July 1898, the Board of Game Commissioners hired an executive secretary, Joseph Kalbfus. Born in Williamsport in 1852, Kalbfus left Pennsylvania as a young man to see the West. He shot buffalo and fought Indians in frontier Colorado. Later, he moved back to Pennsylvania and worked as a deputy sheriff in Carbon County, trying to catch Molly Maguires (a secret order in the coal region that incited unrest among miners) and guard those awaiting trial. He was working as a dentist in Harrisburg when the board picked him. Kalbfus took the job, which for several years offered no salary. He pulled teeth during the day, and served the board at night and on weekends. Kalbfus was also designated as the first chief game protector in July 1898. It was an office, he came to find, not appreciated by many.

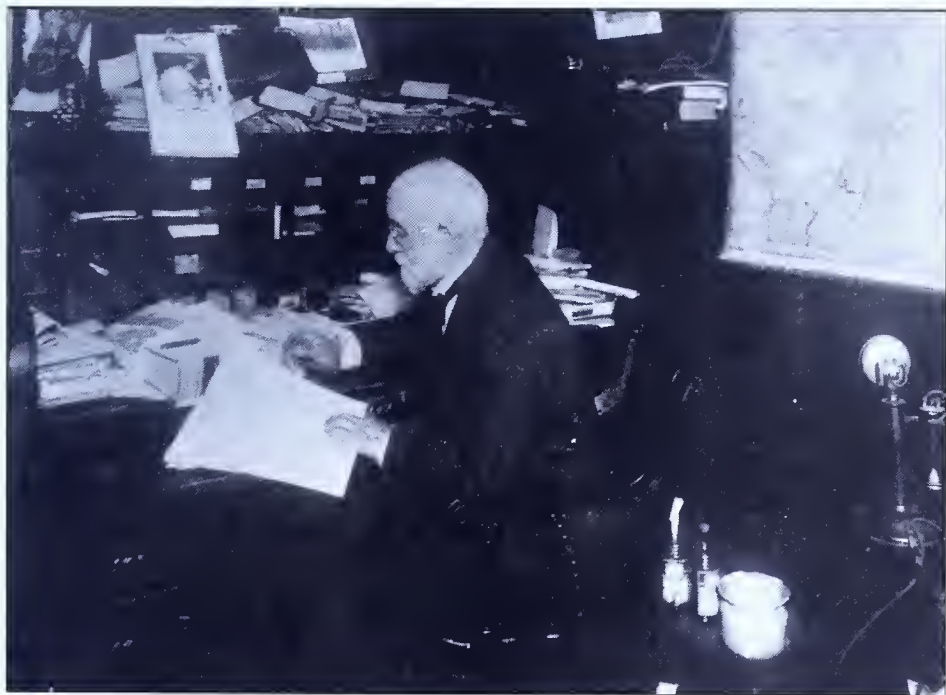
"In the very beginning I found that those engaged in the protection of game were not popular with the majority of the people of Pennsyl-

vania who appeared to think they had . . . an inherent right to destroy game and birds at pleasure," Kalbfus wrote in his autobiography. "By the average citizen Game Protectors were looked upon as men whose sole purpose in life was to annoy and prosecute honest people.

"Many and varied were the threats made of what would be done if I, or any other Game Protector, came into the territory in which these blowhards hunted. We went, however, and one by one the violators fell into greater troubles than they had expected. . . ."

Before the Board of Game Commissioners was established, most hunters favored its creation. They believed it would lead to more game, but they failed to realize it would require sacrifice. They wanted was more game to hunt, not game protectors or season and bag limit restrictions.

Foisting wildlife laws upon a population not comfortable with such notions was no easy chore. Some people couldn't understand the laws or couldn't read them; others figured whatever they could get away with was legal. A few hunters seemed to be publicity mongers bent on letting everyone know what they'd done. The November 2, 1898,



Dr. Joseph Kalbfus, a dentist, was the commission's first executive secretary and first chief game protector. The job paid nothing at first, and Dr. Kalbfus continued to practice dentistry during the day.

edition of the *Perry County Democrat* told its readers: "The county papers report the good luck of some gunners in killing three or four wild turkey in one day. These gunners probably do not know that under the new Game Law it is unlawful to kill more than two in one day, and if some of them should be arrested and made to pay the fine of \$25 for each fowl killed in excess of two, they would not think it such good luck."

The game commissioners, possibly at the urging of Kalbfus — an avid birder — diligently worked toward improving bird protection in Pennsylvania and throughout North America. Their farsightedness and willingness to do battle in the public arena seemed to set them apart from their late 19th century contemporaries. In the spring of 1899 they adopted a resolution condemning spring waterfowl hunting, two years after the practice had been banned in Pennsylvania. The resolution also chastised states that listed songbirds as game:

"We invite the prompt and concerted support of all game commissions, associations and individuals in the United States and Canada to aid us in securing prompt national and dominion laws which totally abolish this nefarious and inhuman practice."

In 1899, the legislature once again appropriated \$800 to the Board of Game Commissioners to pay for two more years of postage. The inadequate financial support prompted the commissioners to lobby for more money, funds to finance wildlife programs and to pay legal fees for challenges to game laws. In an effort to solicit funding, the board circulated a letter asking for donations. The letter, dated May 15, 1900, said:

"If you are interested in the protection of our song, insectivorous and game birds, I would like to present a few facts to you.

"The Board of Game Commissioners of Pennsylvania succeeded in having a good law passed for the protection of birds, but the State did not allow us one dollar to enforce the laws. . . . If you feel like making a donation to this work, it will be greatly appreciated. Any money collected in this way will form a special fund for enforcing the laws for better protection of our song and insectivorous birds, and game birds and game mammals."

Kalbfus and the commissioners also began an intensive lobbying effort in the halls of the General Assembly. They told lawmakers that

it would take much more money to bring back wildlife — particularly, they said, deer, rabbits and game birds. In 1901 the General Assembly increased the board's biennial appropriation to \$3,000. Two years later, the board secured a more generous stipend of \$12,000 for two years. It's possible the board was able to increase its funding because the population wanted wildlife to be protected; voters never opposed the raises.

The fortunes of wildlife and natural resource conservation were improving, if slowly. By 1904, the 17-year-old Forestry Commission had accumulated about 400,000 acres of state forest. Although environmental conditions were starting to get better, laws were often crafted with loopholes and exemptions that weakened their effectiveness. In 1905, the legislature made an effort to reduce sewage contamination by outlawing the discharge of human or animal waste into commonwealth waters without a permit. However, the law exempted "waters pumped or flowing from coal mines or tanneries," major sources of Pennsylvania's water pollution.

Laws and law enforcement were very much on the minds of the commissioners. Some commissioners served as game protectors or "wardens" in their respective districts. Others appointed men they knew could handle the ruffians frequently encountered on the game protector beat. Joe Berrier of Harrisburg, first appointed in 1899 by Commissioner Worden, was one such man.

Berrier and Kalbfus began working together, often traveling throughout the state by train (railroad companies let them board for free) pursuing leads on game law violators. Kalbfus considered "Big Joe" — as the muscular, six-foot Berrier was often called — a fearless individual, "as strong as two or three ordinary men."

"Mr. Berrier . . . a week or so prior to the opening of the game season, while in Luzerne County, attempted to make five arrests," Kalbfus wrote in 1904. "In four he met with armed resistance, and was compelled to use extreme force in making three of the arrests, knocking two of the men down, and shooting the hat off the head of a third." In an era where it wasn't uncommon for people to shoot at game protectors, Berrier was known to wade into mobs of angry people

who were toting guns, shovels, picks and clubs.

Berrier made perhaps his biggest news in 1901 when, in a sworn statement to Commissioner Worden, he accused Commissioner Sober of conspiring with game dealers to eliminate or relax laws pertaining to selling game. Other reports suggested Sober was attempting to undermine a new game law packet being considered by the legislature, one that Kalbfus and the commissioners had developed. It was also alleged that Sober had circulated petitions against legislation the board was working on, presenting at least one petition to the governor.

Within a matter of days, newspaper editorials and letters were demanding Sober's resignation. The commissioners confronted Sober with the allegations in a special meeting. Sober said he'd been obligated to present one petition to the governor at the request of his constituents, saying that while he hadn't signed it, he had written a cover letter for it.

Commissioner C.B. Penrose, a Philadelphian appointed to the board in 1899 to succeed Heebner, told Sober to rethink whom he represented. "For my part, I do not feel that I represent any constituency," Penrose said. "I am a Game Commissioner for the entire state of Pennsylvania, and not for any particular section."

"Well, perhaps I went too far," Sober replied.

Commission President Kennedy asked Sober to consider leaving the board. "Don't you think under the circumstances it would be better for you to make your fight from the outside rather than the inside of the Commission?" Kennedy asked. "Do you think it will be pleasant for you or the rest of us to meet with you after what has taken place?"

Kennedy decided to let the governor handle the predicament. Sober was unwilling to leave the board, and the commissioners were uncomfortable working with him. But within a few weeks it seemed that Sober and his fellow commissioners had worked out their differences.



"Big Joe" Berrier, posing here with his son John, was one of the state's first game protectors.

The governor never intervened. For the rest of his 13-year tenure on the board, Sober pitched in with the rest of the board.

From 1899 to 1905, the commissioners sponsored several bills passed by the legislature that dealt with law enforcement. The first one required constables to enforce game laws. Failure to comply brought a \$50 fine and/or 60 days imprisonment. The legislature in 1901 also approved a measure granting salaries to game protectors; they would no longer receive a percentage of the fines they collected. Next, the governor in 1903 signed a law authorizing the game commissioners to appoint one deputy in each county of the state. Two years later, Governor Samuel W. Pennypacker approved a measure permitting the commissioners to appoint “special deputy game protectors.”

Although efforts were being made to improve wildlife law enforcement, men in the field were underpaid and unappreciated. Even badges, the only way an officer could identify himself, were tough to come by. But those difficulties were small when compared to their biggest problem — staying alive.

The first field officer was shot at in 1903. It stemmed from ill feelings over the nonresident hunting license established that year to discourage hunting by people who weren't Pennsylvanians. In the incident, Deputy Game Protector E.W. Campbell of Pittston was forced to shoot a resident foreigner in self-defense. Much of the shooting that took place over the next several years involved the state's population of unnaturalized citizens.

Kalbfus warned the governor in 1903 that problems with immigrants were getting out of hand. “Our experience with these people leads me to believe that we are face to face with a very serious question, one of grave danger to our people, as well as our game, and our birds . . .” he wrote.

Events of 1904 seemed to bear out his concerns. “Hardly a week passes without an assault of some kind on our officers, from these people,” Kalbfus wrote in a report. “More than one-half of all complaints that come to us of violations of the game laws, implicate in some way people of this class.

“From the time spring opens and our migratory birds begin to

return, until that time comes again, they are at it, with guns, and traps, and snares, and every conceivable method, whereby living creatures can be killed or captured," Kalbfus reported, ironically condemning unnaturalized citizens for many of the same practices the state's settlers had used to take wildlife.

"There was a time when I thought these violations were the result of ignorance. I have changed my mind, and am satisfied at this time, that the great majority of these people know our laws and understand they have no right to do as they do; they not only understand the law but seem to be organized to violate it."

In 1904, five field officers met armed resistance and three were shot. While 1905 passed without a shooting, 14 officers were shot at the following year. Seven were hit and three died.

Game Protector Seeley Houk was one of the fatalities. By all reports, Houk was disliked by many because he pursued his work with strict impartiality and little leniency. He disappeared near Hillsville, Lawrence County, on March 2, 1906. Rumors spread that he'd fled the state, forced out by people who considered his law enforcement tactics unethical. But his shot-riddled body soon turned up in Mahoning Creek. Investigators didn't think robbery was a motive because Houk was still wearing a money clip containing nearly \$500.

The local police investigation stalled, so Kalbfus got the governor's permission to hire the famed Pinkerton Detective Agency using private funds. After a lengthy investigation, the Pinkerton detective in charge of the case gathered enough evidence to have Rocco Racca, an Italian immigrant, charged with Houk's murder.

Racca and his brother-in-law Jim Murdocco reportedly ambushed Houk as he walked along a path near Hillsville. He was shot once in the chest and throat. The murderers used a shotgun; it was loaded with shot made from lead pipe that had been cut into small squares. Murdocco may have fired the first shot, but after Houk fell, Racca placed the muzzle of his gun in or near Houk's mouth and fired another round. During the trial, Racca said he murdered Houk for killing his dog.

Racca was convicted and sentenced to hang. Murdocco fled to Italy shortly after the murder and was never tried. In preparation for his execution, it's reported that Racca ate heartily — trying to gain weight

to ensure his neck would snap when he was hung.

As 1906 came to a close, Kalbfus again made a pitch for more money. By then the agency was getting a biennial appropriation of \$20,000. He wanted a larger appropriation or action that would establish a hunting license to raise revenue. Kalbfus and many Pennsylvania State Sportsmen's Association officials believed a hunting license would solve the board's financial problems, but the General Assembly was not prepared to accept the idea.

While the safety of their game protectors occupied a portion of their time, the board members also concerned themselves with helping wildlife populations. Several options dominated their deliberations: propagating game birds, importing game animals and establishing wildlife preserves.

John Phillips, who became a commissioner in 1905, recalled the board's deliberations. "A careful investigation of the subject of game propagation satisfied the commissioners that efforts to raise in captivity our native game birds . . . had not yet met with any success. Another point that was seriously considered was that just as the introduction of the English sparrow and German carp had resulted disastrously to the nation, so might the importation of foreign game birds result in more injury than good to the state.

"Besides it was by no means certain that these imported birds could survive our severe winters, and the state would have to be stocked at a great expense every year.

"After considering all phases of the matter, the idea of a game farm was abandoned, and the commissioners turned with renewed conviction to the preserve idea, by which our native birds and game could multiply without assistance from man, other than the systematic extermination of vermin and the absolute protection afforded by a perpetual closed season."

On May 11, 1905, the governor authorized the board to establish "game preserves" upon state forest lands for the protection of deer, wild turkey, grouse, quail, woodcock and other animals. Game refuges represented a way to restore some wildlife populations — but at the expense of others. When a location was chosen, predators and nest

raiders were eradicated. Weasels, mink, skunks, foxes, bobcats and house cats were killed with poisons, traps and guns.

Hunting was prohibited on refuges, which were typically about 3,200 acres. They were located on state forests in hopes that dispersing game populations would filter into areas open to public hunting. Fire lanes about 25 feet wide were created around the refuges, and a single strand of wire was strung along boundaries. As a final step, game was stocked if none was present.

The refuge idea was quickly endorsed by most hunters, although some people initially criticized the refuges as hunting grounds for politicians and their friends. But, in time, most citizens came to realize what the properties represented.

In 1905, the first game refuge was established in Clinton County, about 12 miles south of Renovo in what is now Sproul State Forest. The place was one of Kalbfus' favorite hunting grounds, and the first deer season after it became a refuge, Kalbfus patrolled the perimeter to make sure no one slipped under the wire. While making his rounds, he noticed a hunter staring into the refuge. The man had not crossed the boundary, but at his feet were fresh deer tracks heading into the refuge.

"Well, what do you think of the refuge idea?" Kalbfus asked the hunter.

"I kicked up a buck near my place this morning and trailed him over here," the hunter replied. Then he walked over to one of the refuge signs. "Do they mean everybody has to stay out?"

"Everybody," Kalbfus said. "Nobody is allowed in there in hunting season except a game protector to see that no one's violating the law."

"In that case, it's a good idea," the hunter said. "That buck wasn't scared much. If he's safe inside the wire he won't run into the middle of the next county and he most likely will come back to where I started him this morning. I'll get another chance at him, maybe tomorrow. I won't be going inside the refuge."

By 1910, there were three refuges in the state, and the program was widely praised across the nation. It was a miniature version of the Theodore Roosevelt's grand national wild refuge plan. William Hornaday wrote, "... Pennsylvania has been wide awake, and in advance of her times. I will cite her system of ... game preserves as a model plan for other states to follow; and I sincerely hope that by the

time the members of the present State Game Commission have passed from earth the people of Pennsylvania will have learned the value of the work they are now doing, and at least give them the appreciation that is deserved by public-spirited citizens who do large things for the People without hope of material reward.”

To accelerate the restoration of the state’s deer herd, the game commissioners launched a stocking program in 1906 and bought 50 whitetails from a Michigan propagator. The board continued the stocking program for the next 19 years, buying about 1,200 deer from dealers in Kentucky, Maine, Michigan, New Hampshire, New Jersey, North Carolina, Ohio and Pennsylvania. The stocking program dovetailed with other measures already initiated to improve whitetail numbers. Besides the creation of refuges, the board in 1905 outlawed buckshot for deer hunting and passed more stringent regulations concerning dogs.

Hunters concerned about deer populations had for years also been calling for bucks-only hunting and complete protection for antlerless deer (the vast majority of which are females). Kalbfus opposed the idea



These Clinton County hunters, circa 1900, were fortunate to take a couple deer. In 1906 the commission began importing whitetails to restore the herd; a year later it passed the first “bucks-only” law.

at first, citing the difficulty of identifying the sex of deer in the thick brush present throughout much of the state's deer hunting areas. He believed the only additional protection the board could offer deer would be to close the season altogether. But his opinion changed as he discussed the issue with hunters, most of whom favored bucks-only hunting.

If for no other reason, Kalbfus saw that a bucks-only regulation would promote safety by requiring hunters to identify their quarry before pulling the trigger. So when a bill providing complete protection to antlerless deer and establishing a seasonal one-buck bag limit was introduced in 1907, Kalbfus urged its passage. The bill was signed into law April 15 by Governor Edwin S. Stuart.

The first bucks-only season led to a dramatic decline in statewide harvest. In 1906, Kalbfus estimated that Pennsylvania hunters had killed roughly 800 deer, including about 350 bucks. Following passage of the buck law, Kalbfus calculated the 1907 deer harvest to be not more than 200 bucks and 30 illegal does. The first bucks-only season was also the state's first accident-free deer season.

Kalbus and the commissioners considered the outcome a great accomplishment. "The great majority of deer hunters I have met this fall . . . expressed themselves as satisfied with the law," Kalbfus wrote. "The feeling of personal security surrounding each one apparently far outweighed any pleasure they might have derived through killing a deer."

The efforts to restore the deer herd were largely mandated by dramatic changes in forest habitat. The low ebb of deer populations, and of other forest-dwelling species, was as much due to timber operations as to any other cause. In the first decade of the 20th century, Pennsylvania was still a leading lumber state, and lumber companies were clearcutting huge expanses of the state's forest. They left behind entire hillsides of barren, stump-studded ground — simultaneously wiping out both food and cover for forest animals. But within a few years, the clearcut areas were swallowed by a sea of saplings and brushy vegetation that provided ample food and cover for deer and other wildlife.

Although increasing the deer herd was one of the board's primary concerns, the commissioners and the state's sportsmen also wanted to

see the return of bears, wild turkeys, bobwhite quail and ruffed grouse. The board began buying quail for stocking purposes in 1906. Game protectors also began experimenting with wild turkey trap-and-transfer at about the same time. Birds were trapped in areas where they were relatively plentiful and relocated to areas where populations were low or nonexistent.

In 1905, Pennsylvania became one of the first states in the country to establish a bear hunting season. While no bag limit was established, bears could not be hunted from March 2 to September 30. This first bear season was probably the result of Kalbfus' admiration for the animals. The black bear had earned a reputation as destructive animals, but Kalbfus believed culprits such as wild dogs were responsible for much of the damage attributed to bears. Throughout his tenure Kalbfus encouraged increasing protection for bears.



PA State Museum

Pennsylvania's big business in the early 1900s was timber, and clearcutting operations leveled the state's vast conifer forests, taking wildlife habitat with them. But soon the barren hillsides sprouted new growth, creating excellent conditions for animals such as deer, grouse and hare that do well in successional habitats.

The commissioners also turned their attention to sporting arms at the turn of the century. To end what they saw as an unfair advantage for hunters and a growing problem, the board petitioned the General Assembly in 1907 to ban what they called “automatic guns.” The appeal was part of a growing movement in America to eliminate self-loading hunting guns being manufactured by the Marlin, Remington, Stevens, Winchester and Union arms companies. The legislature supported the automatic gun ban proposal, and on May 31, 1907, Governor Stuart signed the bill into law — making Pennsylvania the first state to ban semi-automatic guns for hunting. The fine was \$50 or 50 days in jail.

Another gun restriction proposal, one that the commissioners had been seeking for years, was approved by the legislature in 1909. The law made it illegal for “unnaturalized, foreign-born residents” of Pennsylvania to own or possess shotguns or handguns. The law came as the result of the constant gun battles between game protectors and immigrants.

“If I had the power to take these guns, their power for evil would be removed,” Kalbfus told the commissioners in his 1906 annual report. “Let the State grant us this right, and the question of correcting these conditions will be up to us. The question of the right of these people to carry arms is not one of game and bird protection only. It is not one of safety to our officers alone, but is one of protection and justice to all our people.”

After the law’s passage, 20,000 cloth notices were printed and circulated throughout the state to advise immigrants of the new law. Each notice was printed in English, Slavic and Italian. While most immigrants abided by the law, within several years the issue wound up in the courts. One such case, involving a defendant named Joseph Papsone, was deliberated in 1910 and 1911 by the state’s Superior and Supreme courts. Both upheld the law’s validity, and Papsone appealed before the U.S. Supreme Court. The federal court deliberated for several months, and on January 19, 1914, it upheld the lower courts’ decisions. The law barring unnaturalized immigrants from owning shotguns and handguns would not be repealed in Pennsylvania until 1967.

As the first decade of the 20th century closed, the Board of Game Commissioners was establishing itself as a leader in wildlife conservation. Several game species were coming back in areas where they had all but disappeared. And the legislature was appropriating more money to the board than ever before. But the battle to institute a hunting license was just about to begin.

4



Quest for a License

ONE OF THE LONGEST-RUNNING political feuds between the game commissioners and the public and the legislature was a proposed \$1 resident hunting license. The commissioners saw it as a means to finance operations without having to beg funding from the General Assembly. Many hunters viewed it as an infringement on their rights, an unreasonable charge to do something they'd always done for free.

Surprisingly, the commissioners had originally opposed the \$1 license, believing it an unnecessary tax. But the political realities of governmental appropriations — a lack of money, in other words — and a shot at political autonomy made them change their minds. In 1906, Dr. Joseph Kalbfus began petitioning the governor for a \$1 resident license. He suggested the license monies could fund wildlife protection, maintain game preserves, buy deer and other animals for stocking, and pay bounties on predators.

"This proposition it seems to me is absolutely fair and nothing else; the man who hunts is asked to pay and no other person, and the money thus secured is applied to his use alone," Kalbfus wrote in his 1909 annual report.

The battle for the license dragged on for years. Opposition was particularly vehement in Harrisburg, home of the Hunters' and Anglers' Protective Association. It was a group that, according to Assistant Executive Director Seth Gordon, had "a membership of 75,000 banded together not for the protection and propagation of game but to protect themselves from the game laws and to oppose the work of the Game Commission."

In 1911, Sam Garland, Hunters' and Anglers' Protective Association president, wrote a letter to Commissioner John Phillips. He said the association was concerned that money from the license would be used to build roads, parks and other such projects. Second, he wrote, the bill would cause conflicts between hunters and private property owners "for the reason that the hunter has paid the state for the privilege of hunting game belonging to the state, and the farmer and landowner will have to pay the state for the same privilege, and he being in possession of the land, will claim a right to the game, and will forbid all hunting on his property. . . .

"Third, a fund paid into the Treasury in this manner, will relieve the average legislator of the responsibility of providing any funds for the protection of game, making it impossible to get any apportionment outside of this license fund."

Others tried to brand the license as an attempt to prevent boys from hunting, or as a proposal requiring hunters to pay \$1 each year for every gun they owned. Some thought it was a way to bilk hunters out of money. Kalbfus refuted the charges almost daily. "The sole and only question that should be considered as arising from this bill is: Are the sportsmen of this state ready to come to the front in defense of their game and wild birds, and to contribute a dollar each, annually, to its support?"

In a May 1912 letter to Phillips, Garland told the commissioner the license campaign and the game preserves were a waste of time. Garland promised "to oppose them with all the vigor I possess."

"The whole thing in a nutshell," Phillips fired back, "is that because you cannot secure a paid position as a game protector or the secretaryship of the Game Commission, you are against the commission and its work."

The pair duelled in newspapers, magazines and letters, and before

sportsmen and legislators. Sportsmen's clubs circulated petitions for and against the license and sent them to Harrisburg. The Game Commission printed and distributed to hunting clubs a bulletin explaining why a license was crucial to the future of hunting.

In January 1913, Phillips drew up a proclamation, subsequently adopted by the commission, that read:

"After years of effort, the Game Commission finds it impossible to induce our Legislature to appropriate sufficient funds to protect and propagate game for the three percent of our population that hunts; for years the Game Commission has advocated and again called to the attention of our sportsmen the \$1 Resident Hunter's License, which would furnish ample means for the protection and propagation of game and the payment of bounties on noxious animals, and place our state in line with 35 progressive states of this Union and the Canadian provinces operating under this beneficial law."

Phillips also called upon Governor John K. Tener, a boyhood friend, for assistance. "I told him, 'Give us a resident hunter's license law and I will die happy.' He promised to do everything in his power to help."

Phillips went so far as to enlist the aid of one of the most visible and influential conservationists of the age — Colonel Theodore Roosevelt. Roosevelt, U.S. president from 1901 to 1909, was happy to oblige and wrote a letter supporting the license.

"Later, I received a strong letter . . . such as only [Roosevelt] could write, recommending this idea to the sportsmen of moderate means who hadn't the time or the money to go far afield in search of game," Phillips said. "We had this letter photographed and distributed throughout the state. It had a telling effect and I think went a long way towards defeating the opposition."

But the battle wasn't over. Within days of the letter's publication, Roosevelt began receiving hate mail from Pennsylvanians. Phillips promptly wrote Roosevelt's secretary. "I am very sorry that I have subjected Col. Roosevelt to receiving letters from the opposition."

The efforts on behalf of the license began to show some effect. Legislators were finally starting to talk about the need for it and the good it could accomplish. One final confrontation between Garland and Phillips occurred as a House committee was collecting testimony

on the license bill. Garland's testimony so enraged Phillips that at one point he stalked up to Garland, pointed a finger at him and shouted, "You damned liar!" Garland, a large man compared to the slender Phillips, reportedly sunk into his chair and said nothing further. Those attending the meeting laughed heartily.

The bill was reported out of committee shortly thereafter, and it cleared the House and Senate with little resistance. On April 17, 1913, Governor Tener signed the bill. The law required all resident hunters to buy a \$1 hunting license. It exempted persons who hunted on lands they owned or leased and those properties adjoining theirs. Landowners' family members and tenants could also hunt on their properties without a license.

The license law did have a few minor flaws. A license was not required to hunt birds and mammals not protected by the game law — foxes and crows, for example. The license also didn't apply to those who hunted or trapped bounty animals. And the law mandated hunters to display the tag on the back of a shirtsleeve, between the



John Phillips enlisted the help of Colonel Theodore Roosevelt to secure a resident hunting license in 1913. Above, President Roosevelt attends the dedication of the new state capitol in 1906 with then Governor Samuel Pennypacker (at right).

elbow and shoulder, a location that frequently obscured the license number.

Many of these problems stemmed from the fact that Kalbfus' input was ignored by the bill's crafters.

"Doctor Kalbfus over the years apparently had incurred animosity among legislators who favored a license," Gordon later wrote. "He had little or nothing to do with drafting the bill as it was introduced. Those in charge of it even rejected his suggestions for improving it."

Still, Kalbfus endorsed the law as written. "Through the provisions of this bill, a fixed source is established through which revenue is provided to be applied to game protection and increase in various ways, and sportsmen of the state cannot be accused of begging that moneys needed for the support of hospitals, or schools, or good roads, or any other public purpose, shall be applied to their benefit."

The Game Commission's success in obtaining a resident hunting license wasn't its only victory. Deer, bears and wild turkeys were making strong comebacks in many areas. The legislature had increased the game protector complement from 10 to 30 and had approved a pay raise for the officers. In addition, more and more hunters were adhering to game laws, and in some cases helping to enforce them.

In 1912, the commission began talking about reintroducing elk. The idea stemmed from a federal government effort to reduce the mushrooming elk herds at Yellowstone National Park and the Jackson Hole refuge area. The U.S. Department of Agriculture's Bureau of Biological Survey and Department of Forestry, unwilling to sanction a hunt for the burgeoning population, wanted to relocate some of the animals.

Kalbfus believed it would be a good idea to bring some of the animals into Pennsylvania. He thought the elk should be located in the center of the state, far from agricultural lands in order to reduce crop damage. Introducing them in the middle of Pennsylvania would also give the elk more wooded habitat and would lessen the chance that they'd wander out of the state.

In 1913, Pennsylvania's first shipment of Yellowstone elk arrived by train. The 50 elk cost about \$30 each. Half of the shipment went to

Clinton County, the other half to Clearfield County. An additional 22 elk were purchased from a Monroe County facility that year. Twelve were released on state lands in Monroe County (a decision brought about by political pressure and contrary to Kalbfus' wishes) and the remainder went to a Centre County refuge. To help the elk herds establish themselves, the legislature in 1913 enacted a law protecting them until November 15, 1921, when a two-week elk season would be held. Bulls with at least four points to one antler would be legal.

The Game Commission quickly learned elk were nomads, wandering sometimes as far as 40 miles within a week of their release.

"They are not only disposed to wander far but also to raid growing crops, and several claims for damage have already been filed," Kalbfus said. "It seems to me that it would be well to wait a few years at least before releasing any more of these animals in the commonwealth."

The commissioners listened to Kalbfus, but only for about two years. In 1915 the Game Commission bought 95 more from Yellowstone. They were released in six counties: Cameron, 24; Carbon, 24; Potter, 24; Forest, 10; Blair, 7; and Monroe, 6.

Stocking elk was a huge undertaking. In one instance, a train carrying elk arrived at Howard Siding on a snowy January morning in 1915. The elk were in cattle cars, which presented a problem to the men unloading the 24 destined for Game Refuge 14 (now State Game Lands 14) in Cameron County. They planned to transport the elk in wooden crates on sleighs from the station to the refuge, a distance of a few miles. It took several hours to load the sleighs with the big animals; the elk were then moved to area along the west branch of Hicks Run known as the Big Basin.

Many people considered elk reintroduction a step in the right direction, but farmers weren't among them. It didn't take the elk long to become a crop damage problem.

"When the farmers complained," Phillips reflected, "we went into Centre County and found where a band of elk had been raiding a cornfield at night and had destroyed every ear in the field by biting about two inches off the end. They seemed to like the silk."

The state's elk population slowly increased around the release areas, despite illegal harvests by poachers and farmers. As the decade came to a close, the Game Commission began considering the possibility of

killing troublesome elk in Blair and Monroe counties. But Monroe County farmers beat them to it.

The commission didn't want to arrest farmers for killing elk for crop damage. The agency believed instead farmers were entitled to compensation for their losses, and it petitioned legislators to address the issue. The effort failed because, according to Kalbfus, the legislature believed the farmers and fruit growers would submit "exaggerated claims" and the Game Commission would be unable to prove otherwise.

Kalbfus said, "The chairman of the House Committee on Appropriations told me personally that he could not support this bill for the above reasons, and in addition said, 'If this is done a precedent will have been established that will cost the state untold money.' "

If elk were a problem for farmers, deer were a plague. In some areas, crop destruction from whitetails rivaled the losses caused by the chestnut blight that was then rolling across the state. There was talk of a doe season and paying farmers for crop damage, but the legislature refused to consider such moves. Deer were reestablishing populations in areas from which they'd all but disappeared, and the majority of the state's citizens welcomed the return.

Each year, the buck harvest climbed to new heights. In 1913, it topped 1,000 for the first time in the 20th century, and the take occurred in spite of a new law that made legal only bucks with antlers at least two inches above the hairline. The two-inch regulation remained in effect until



Deer populations and harvests climbed during the Teens, as this 1917 photo from Warren County illustrates. The Game Commission continued to stock deer, even as whitetails caused increasing problems for farmers.

1921, when it was increased to four inches.

Despite the growing problems with deer, the Game Commission continued to stock them. In 1916, 193 whitetails and 21 English fallow deer were released in the state. But even as the commission was bringing in more animals, Kalbfus recognized a need to shoot does. In his 1916 annual report to the governor, he wrote:

“In many sections of the state female deer have increased exceedingly, and because of the law giving them absolute protection, have apparently come to believe they belong in a privileged class that can do as they please, and they are so acting that in my opinion, it will be necessary in the near future, perhaps at the next session of our legislature, to declare an open season for does for a fixed period, during which some may be killed and others taught their place,” Kalbfus wrote.

In 10 years, Pennsylvania had gone from having few deer to too many in some areas — a change that occurred without ever closing the season on them. But to most Pennsylvanians, antlerless deer remained sacred cows. Shooting a doe or fawn was akin to stealing from the church.

Kalbfus believed an antlerless harvest would eventually become an integral part of the Game Commission’s deer management program, although he realized what an unpopular opinion he held. In 1917 he told Gordon, “Thank God I won’t be in charge of this work 10 years from now, because someone is going to have hell to pay.”

The buck harvest provides the only available yardstick for measuring the deer herd’s size in the very early part of the 20th century. In 1915, the buck kill was 1,287; five years later it had more than doubled to 3,300. Assuming the total population grew proportionately, Pennsylvania’s deer herd was climbing rapidly, and so were crop damage complaints.

Kalbfus continued to petition the governor and legislators to consider an antlerless license. Even Garland, still no friend of the agency, asked the commissioners to consider a special \$5 license permitting the holder to kill an antlerless deer. The board voted it down.

In 1913, the legislature took two popular steps — at the insistence of sportsmen — to increase populations of other wildlife species. It

first enacted a bounty on bobcats, foxes, mink, weasels, great horned owls, goshawks and sharp-shinned hawks. Then the legislature passed a county abrogation law entitling citizens to take a more active role in game management. The law permitted residents to petition the Game Commission to close hunting seasons for specific game animals in their counties if at least 200 people believed the populations of those species couldn't withstand a hunting season.

The abrogation law seems to have been instrumental in increasing a variety of wildlife populations in many counties. The first year it was on the books, hunters in nine counties successfully petitioned the Game Commission to close deer season. By 1918, almost every county in the state had a season closure for one game animal or another. The most frequently protected species were deer, wild turkeys, ruffed grouse, bobwhite quail and ring-necked pheasants.

The bounty law, a carelessly written piece of legislation strongly opposed by the Game Commission, empowered county officials and justices of the peace to pay the established fees to those who filed claims. The state would then reimburse the county with money from the hunting license fund. Animals submitted for bounty had their ears or heads cut off, or were cut from the ears to the nose, to eliminate duplicate claims.

It didn't take long for people to figure out how to make some easy money. In some cases, officials helped to falsify claims. In others, people presented animals from other states for bounty.

According to Kalbus, animal skins — weasels, for instance — were purchased from fur dealers in other states and Canada for as little as eight cents apiece and then turned in for a \$2 Pennsylvania bounty. And there were exaggerated claims as well. "In one county claims were presented by a man living in another county, this man swearing that he had killed 102 goshawks in four days during the summertime in that county, when at that time there was not one live goshawk in a wild state in this commonwealth," Kalbfus said.

It took the state two years to set up a reimbursement procedure by which counties could be paid for claims, and that year the auditor general decided to investigate all claims for fraud before payments could begin. The probe was conducted by that office and by the Game Commission.

“Prior to the passages of this act, no one could, under any condition of circumstances, have made me believe that there were so many men in Pennsylvania willing to commit perjury for a dollar,” Kalbfus wrote.

But there were. By the time the investigation was completed, \$75,000 worth of improper and fraudulent claims had been eliminated, and more than a dozen officials and several times as many claimants were jailed. Dozens of other people left the state before the law could catch up to them. The bounty law was soon rewritten.

The Teens saw the commission make a serious commitment to ring-necked pheasant introduction. New York, Massachusetts and New Jersey had been operating pheasant rearing facilities — game farms — for years. The agency wanted to continue investing in the game preserve program and increased law enforcement, along with purchasing birds from propagators for stocking. But pressure from hunters to begin raising and stocking pheasants finally won out. Successful private stockings in Pennsylvania and published accounts of flourishing programs in other states made it impossible to avoid.

During the spring of 1915, 1,000 ringnecks were purchased and released in southern and central counties, where sportsmen took care of them. The birds increased through breeding over summer, and a good number managed to make it through the fall hunting season. About 600 were taken by hunters, but the commissioners considered the birds nothing more than a put-and-take resource — one that could provide hunting in sections where native game birds had been exterminated.

In 1916, the Game Commission began a pheasant hatching and rearing program, in addition to releasing 1,563 birds it had purchased. Sportsmen were given sets of eggs with instructions on how to hatch them and raise pheasant chicks. The effort failed, though. Less than half of the 5,380 eggs hatched; no more than 10 percent of the birds that did hatch reached maturity.

Although ringnecks released in the wild were increasing their numbers, Kalbfus was pessimistic. “I am more than ever satisfied that the ringneck pheasant is strictly a ground feeder; that it is not a budder, and must be artificially fed when snow covers the ground, or they will

just as surely starve as do chickens or tame pigeons under like conditions, and for these reasons can never become a part of the fauna of this commonwealth," he wrote in 1917. That year, birds were released in 53 of the state's 67 counties.

Within three years, though, pheasants would prove Kalbfus wrong. Seth Gordon, in his report to Governor William C. Sproul, wrote: "We received many authentic reports last spring that these birds had positively lived through our severe winter without any assistance. This is very gratifying because before ringnecks were stocked by the commonwealth all the information available indicated that ringnecks could not live for any length of time in Pennsylvania should the ground be covered with ice and snow."

Another early success for the Game Commission was the reestablishment of the beaver, which had vanished from the state in the late 1800s. The reintroduction project started in the spring of 1917 with a pair of Wisconsin beavers that sportsmen released into East Cowley Run, Cameron County, which bordered Game Refuge 17. The pair reproduced that year, and within months, hundreds of people were stopping at the refuge to see the large furbearers. By 1922, most of the creeks in Cameron and southern McKean counties were inhabited by offspring of those two animals. The Game Commission got into the act in 1919 when it purchased beavers from Canada and New York and released them on game refuges. Eight beavers were released the first year, 50 in 1920, 12 in 1922 and 24 in 1924. The reintroductions soon established beaver populations in suitable habitat across the state.

Not all wildlife releases went so well, though. Efforts to establish populations of Mexican quail and Gambel's quail from 1915 to 1918 failed miserably. In some cases, transportation problems proved insurmountable. In one shipment of 6,000 quail from Mexico, 4,000 birds died before they could be released in Pennsylvania.

The commission began feeding game during the Teens, a program begun initially to compensate for losses caused by the chestnut blight. The agency first put out grain and performed browse cutting (cutting woody growth to allow deer to get at the buds and twigs) when snow covered the ground. Deer, turkeys and squirrels quickly discovered such sites, and the commission was moved to try other wildlife feeding and habitat enhancement projects.

The expansion proved to be the beginning of the Game Commission's land management undertakings. The agency urged sportsmen to plant food-producing trees, vines and shrubs, singling out such species as apple, mountain ash, dogwood, sassafras, hawthorn and chinquapin. The seedlings, the commission said, should "be planted wherever they can be made to grow, for now that the chestnut blight is sweeping away the chestnut trees, the food supply of our wildlife must be short indeed, unless something is done to take its place."

These first forays into land management marked a departure for an organization that had primarily focused on such wildlife management issues as seasons and bag limits, vermin control and game releases.

Law enforcement efforts also underwent significant improvements during the decade. In 1911, the legislature increased the number of full-time game protectors from 10 to 30, still an inadequate complement to keep watch over the state's 45,333 square miles and nearly half a million hunters. To complicate matters, game protectors pulled double duty as refuge keepers if a game preserve was located within their jurisdiction. The preserve work included habitat enhancement, predator control and perimeter patrol. In addition, they served a public relations role, talking to the many visitors that the refuges attracted. Most wardens with keeper duties lived in agency-owned houses on or close to the preserves, which were frequently located in remote areas. In 1915, the legislature authorized the Game Commission to double its law enforcement strength to 60 men.

Complement increases couldn't have come at a better time. New and important wildlife laws were being placed on the books every year, laws that typically closed loopholes or provided additional protection for specific game animals. In 1911, steel traps were banned for taking bears, and four years later it became unlawful to trap bears in pitfalls and pens. Roadhunting, the practice of shooting game animals from automobiles, was outlawed in 1917. The legislature also addressed continuing concerns over wildlife being taken by unnaturalized citizens, and in 1915 the governor signed a law prohibiting resident foreigners from owning dogs.

On November 7, 1915, tragedy struck the warden ranks when

Game Protector Joseph McHugh of Weatherly was shot and killed by Francis Thomas, a 19-year-old from Drifton. The shooting occurred on a Sunday afternoon in Carbon County while McHugh and a friend were looking for poachers. Thomas told police he had accidentally shot McHugh — the last game protector ever killed in the line of duty — while unloading his shotgun.

Although public sentiment against Thomas was vehement at the time of his arrest, it had mellowed by the time he went on trial in January 1916. Thomas' lawyers claimed the young man had become the victim of the state's attempt to avenge McHugh's death. The district attorney in the case sought the electric chair. At the trial's conclusion, the jury returned a "not guilty" verdict after deliberating a little over an hour.

Law enforcement's effectiveness improved with advances such as the automobile and the telephone. But sometimes those improvements were overshadowed by personnel problems. Turnover was high, and in some cases the wardens were unqualified for the job or were unwilling to pursue investigations because they knew the people involved. Many of the problems stemmed from the game protector selection process.

"When it is necessary to appoint a man as a game protector, we go into a locality where he is to be appointed," Phillips said in a speech. "We are very careful about that. We want an outdoor man, a sportsman, and sometimes we select a law violator — that is, a man who has been such. He knows the ways, and he knows how to catch the law violator."

This procedure changed with time. Kalbfus began selecting former state policemen and armed forces veterans as game protectors, believing their previous experience made them better qualified.

"The training of new men is not a pleasant task, and I therefore am more willing to accept the service of a man already educated to his task," Kalbfus wrote. "Many men appear to think a commission with salary attachment is all that is needed. I have to my sorrow found this to be a mistake."

Officer problems began to dissipate, prosecutions went up and public approval of game protector work climbed steadily. On July 12, 1919, the legislature authorized the hiring of 20 more wardens.

The increased strength and effectiveness of law enforcement, new initiatives in land management, recovering habitats and a solid record of returning or maintaining wildlife populations painted a bright picture of the Game Commission near the end of the Teens — a picture that would be soon altered by dramatic shifts which would chart the agency's course for much of the rest of the century.

5



A Push for Land

A LITTLE MORE THAN three months after America entered World War I in 1917, Governor Martin G. Brumbaugh signed the Auxiliary Game Refuge Law to expand the commission's refuge system, which by that time was providing sanctuary to wildlife on 20 sites. It established refuges, particularly for small game, by encouraging landowners to sign leases to prohibit hunting on at least 250 of their acres for 10 years.

Landowners, however, were reluctant to sign up their properties as refuges. The solution to setting aside land for wildlife came on June 20, 1919, when Governor William C. Sproul signed a law authorizing the commissioners to buy lands "for game preserve purposes." That historic law became the basis for the Game Commission's land acquisition program and the state game lands system. The first purchase was 6,288 acres in Elk County, designated as State Game Lands (SGL) 25 — the number 25 resulting from the game refuges numbering system that ran 1 through 24 at that time.

Following these hallmark events and after 21 years of service, Kalbfus tendered his resignation at a commission meeting on July 10, 1919. The commissioners didn't act on the resignation, seemingly

because they wanted him to stay. But exactly one month later, Kalbfus died in a train/automobile accident enroute to inspect a potential game refuge near Warren. E.W. "Woody" Kelly, field superintendent for game refuges, was also killed in the accident at the Saybrook railroad crossing.

The organization had lost what many considered its founding father, someone who was primarily responsible for charting a course for the young agency and for wildlife conservation.

An excerpt from Kalbfus' 1914 annual report summed up some of his beliefs regarding hunting and wildlife management.

"I believe for various reasons that hunting is a national necessity, that because this is so it is the duty of the State to supply to the fullest extent possible lands whereon men may hunt without running up against trespass notices, and also to supply game of various kinds to be hunted," Kalbfus wrote.

"I believe that sportsmen are better fitted to draft game laws than are scientists, or any other class of men. Sportsmen in Pennsylvania today are not paupers; they are supplying the money through which protection is given not only to game, but also to song and insectivorous birds, and the sportsmen's ideas should be given consideration in matters of this character."

Kalbfus was replaced by his understudy of many years, Seth Gordon. Gordon wasted little time showing sportsmen which direction the Game Commission would take in wildlife management, as illustrated by a 1920 report he made on grouse.

"Our sportsmen must continue conserving the grouse because of the ever-increasing number of hunters, improved firearms, highways, etc., or else the pendulum will swing backward never to again return, and they will be added to the list of extinct species because of lack of protection by sentiment and statute, another victim of a short-sighted let-the-other-fellow-protect-and-conserve-them policy."

In a five-year period following the acquisition of SGL 25, the commission purchased more than 86,000 acres of land and had contracted to buy another 13,000. In addition, the agency was using or leasing more than 100,000 acres of state forest and private lands for game refuges.

Although the board was interested in buying game lands, it was also

dedicated to establishing auxiliary refuges on private properties throughout the state. By 1924, 10 auxiliary refuges had been set up, and that year the commission decided it wanted to develop another 200 such refuges over the next two years.

"The auxiliary game refuge is unquestionably the second line of defense in preserving our game, especially in territory near large centers of population where extensive, unbroken forest areas are not available," Gordon wrote. "An effort is being made to establish two to five auxiliary refuges in every county."

The plan was scuttled in subsequent years, though, as new commissioners came on board. Some of them believed the auxiliary refuge plan was a poor investment of time and money. They believed the best way to ensure continued good hunting in the state was to buy and set aside lands strictly for the perpetuation of wildlife. Establishing auxiliary refuges on leased lands, they felt, provided only a short-term solution.

Purchasing land became big business for the Game Commission when the legislature in 1927 increased the resident hunting license fee to \$2. Seventy-five cents from each hunting license sold was earmarked to be "used exclusively for the leasing, purchasing and maintenance of game refuges and public hunting grounds." Most of it was used to purchase land: Commissioners wanted to get property while the price was low and while good land was still available.

In late 1928 and early 1929, the Game Commission intensified its land acquisition program, buying 42,865 acres. The purchases in that short period increased the agency's holdings by a third, and at the close of the decade the commission owned more than 175,000 acres.

Early state game lands were set up under the game refuge concept developed by Commissioner John Phillips. The center of the game lands was designated a refuge where no hunting was permitted. Its boundary was marked with a fire lane and a running strand of waist-high wire. Commission-owned lands outside the wire were called "public shooting grounds."

Phillips promoted the program across the state and at national gatherings of wildlife officials.

"We think our system of establishing many miniature Yellowstone Parks throughout the state, each surrounded by ample hunting grounds, is preferable to the exclusive sanctuary idea," Phillips told the members

of the 14th American Game Conference in 1927. "During the season, the hunting grounds are open and accessible to the man of moderate means who cannot spare the time or money for an extended trip. Much game is killed on the hunting grounds, but most of that escaping, instead of being driven outwardly, seeks sanctuary in the central refuge. Because of this fact, stock is saved for future propagation. I believe that these hunting grounds save wildlife. Instead of calling them public shooting grounds, we might well call them public shooing grounds or wildlife saving zones.

"At the Ligonier refuge, a few years ago, the keeper in one day during the hunting season counted the tracks of 74 deer entering the refuge and only 14 leaving it," Phillips said.

Pennsylvania's wildlife management programs, of which the game lands/refuge concept was a part, became models for other states. Some of the success of Pennsylvania's programs could be traced to the efforts of the commonwealth's hunters, who were willing to go to great lengths to ensure game populations would never again erode to what they were in the 1890s. It was not lost on sportsmen that there were many people competing for a limited resource.

"We today have 600,000 men scouring these hills of Pennsylvania," Phillips said in 1921. "A brush pile, in the beginning of the season, may be as high as my head. At the end of the season, you can hardly find two sticks together from the tramping it has received. I have seen 10 men on one brush pile in one hour on the first day of season, hunting for the rabbit that the first man had chased out of it."

In 1923 and 1924, field personnel planted or helped plant 332,500 seedlings. To supply future tree-planting efforts, a special game food nursery was established at Game Refuge 3 on the Mont Alto State Forest in Franklin County. It provided species such as dogwood, wild black cherry and walnut.

A year later, the planting for wildlife program was expanded to include wetland habitat improvement. In 1925, for instance, large quantities of wild rice, celery and other seeds and tubers were purchased and planted in streams, lakes and ponds in 28 counties. It was the first extensive planting of its kind in the state.

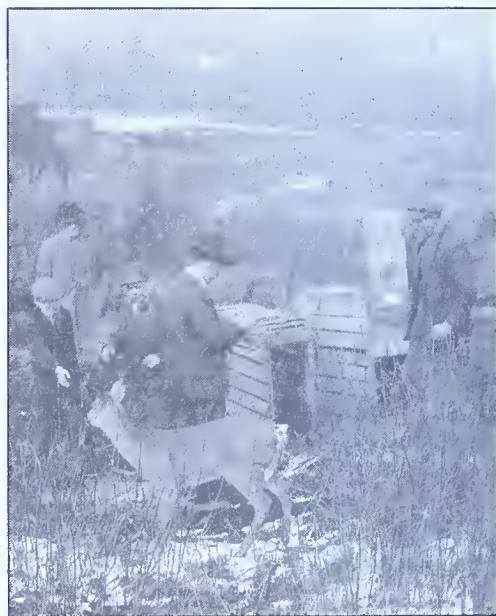
The Game Commission continued to urge the public to feed game and plant seedlings beneficial to wildlife, and many people partici-

pated in the efforts — sportsmen, landowners, Boy Scouts, rural mail carriers. The work ranged from small scale plantings to major operations involving modern technology. The most spectacular of these efforts was the distribution of grain from an airplane by the Blair County Game, Fish and Forestry Association, during a snow so deep it was “practically impossible for men to reach wild turkeys, grouse, ringneck pheasants and quail in that county by any other method,” Gordon wrote in 1926. “The newspaper publicity given this plan of feeding induced many Pennsylvanians to become more active in feeding work, and encouraged sportsmen in other states to undertake constructive feeding campaigns.”

Pennsylvania’s white-tailed deer management program continued to be a successful, albeit somewhat painful, experiment. Although deer were creating problems for farmers, they were still rare in some areas. The commissioners continued to buy deer from propagators and release them in areas where citizens wanted more deer — just about every area with few farmers.

Buck harvests continued to rise, as did crop damage complaints. In 1921, at the request of hunters, a law was enacted making only bucks with antlers four inches above the hairline legal game in deer season. The four-inch antler law succeeded a 1913 law stipulating a buck’s antlers had to be two inches above the hairline. But the change didn’t satisfy hunters for long. They began campaigning for a more stringent buck law just months after the four-inch law was signed by the governor.

The buck law changed again



Deer stocking continued through the early '20s. This release was conducted on the Norwich State Game Refuge in McKean County around 1923.

in 1923, when bucks with two or more points to one antler, or one antler at least six inches long, were declared legal game. The law was revised again two years later: Only bucks with two or more points to one antler were legal. The law was not changed again for 28 years.

In 1922, the Game Commission renewed its discussions of doe hunting seasons, and hunters continued to oppose the idea. Nevertheless, the commissioners were determined to hold an experimental antlerless deer hunt. They scheduled one after buck season in 1923 for 100 permittees in Franklin County's Quincy and Washington townships. Slightly more than 90 hunters paid \$5 for a special doe license and participated in the first day of a three-day hunt. Hunters who opposed the hunt harassed them, and some landowners posted their property. The turnout for the remaining two days was poor, and so was the hunt's total harvest. In three days, hunters killed only eight deer.

Undaunted, the commissioners in subsequent years scheduled doe seasons in areas where crop damage was extensive. Over the next three years, 6,169 licenses were issued to farmers or sold to hunters in targeted areas. The licenses produced a harvest of 1,155 antlerless deer, a much lower kill than the agency wanted. It soon became apparent that special, small-scale deer hunts weren't effective. The deer problem grew worse: Crop damage complaints were coming from 25 counties by 1926, up from 10 counties just a few years before.

"Sportsmen must simply disregard their sentimental attitude toward female deer and be willing to try sensible game management if they hope to remedy this situation without undue friction extending over a long term of years," Gordon wrote.

Hunters continually petitioned the commissioners to steer clear of doe seasons, and the board did its best to comply. But something had to be done, and in 1926 the commissioners adopted a proposal in which a limited number of game protectors would kill and dispose of surplus deer.

In July 1927, the commissioners went a step further and agreed to deputize "expert hunters" to harvest doe in areas where crop damage was getting progressively worse. The hunters were dispatched to Cumberland and Lycoming counties, and before the 1927 deer season opened, the deputized men had killed 185 deer — 139 of which came from Cumberland County. When sportsmen heard about the opera-

tion, they immediately began to protest. The board ignored them, but when it reviewed the program several months later, one thing became clear: The only solution to the deer problem — which concerned the health of the deer population as well as the agricultural community — was a statewide antlerless deer hunt.

The successive changes in forests throughout the state were reducing wild food supplies available to whitetails. The sapling thickets in which deer thrived for the century's first two decades were maturing to pole timber stage and providing little browse. The problem began to manifest itself in the winter of 1927: Deer, predominantly fawns, began to die.

Talk of a six-day statewide doe season, following the traditional two-week buck season in 1928, first surfaced at a May 1927 commission meeting. When news spread of the Game Commission's intentions, hunters once again raised their voices in opposition. But the board did not want to put the largest deer herd in the United States at risk, and it decided to press on with the antlerless hunt.

By this time a number of changes had occurred within the Game Commission. John B. Truman had replaced Seth Gordon as executive secretary. Ross L. Leffler, a Carnegie Steel Corporation official from McKeesport, had been appointed the board's president after John Phillips resigned following a political battle with the governor (details of which are found later in this chapter). After familiarizing himself with the state's wildlife problems, Leffler concluded drastic action was necessary, and he convinced his fellow board members to take that action at the May 1928 meeting.

At that meeting, Leffler and the rest of the board voted to close the traditional December statewide buck season for the first time in state history. In its place, the board scheduled an antlerless deer season for December 1-15 in 51 of the state's 67 counties.

Hunters expressed outrage. Prominent Pennsylvanians spoke out against the Game Commission's action, and legislators promised to scuttle the scheduled season. But by this time the commission, not the legislature, was empowered to set seasons and bag limits — the result of legislation passed in 1925. To support its decision to hold an antlerless season, the Game Commission invited Vernon Bailey, chief field naturalist with the U.S. Biological Survey, to examine deer

conditions in the state and to render an opinion regarding the antlerless season. In mid-May, Bailey toured portions of northcentral counties, and he submitted a report to the Game Commission.

"In places where the whole slope is grazed to a height of six feet from the ground, fawns and yearlings can not reach to the lowest branches of the trees and are thus deprived of the best food," Bailey wrote. "The low shrubbery is usually closely cropped or exhausted before the higher levels are reached by the large deer. This apparently is the cause of the recent loss of large numbers of last year's fawns."

In a four-township area of Clearfield County, Bailey reported about 200 dead fawns had been counted by wardens and that those same wardens estimated 1,000 dead fawns in those four townships.

"To anyone who has carefully studied the situation it is evident that large parts of the range in Pennsylvania are overstocked with deer," Bailey concluded.

Newspapers carried headlines such as "Opposition to Ruthless Slaughter of Does Spreading among Pennsylvania Sportsmen" and "Penna. Gunners War on Doe Slaughter" on their front pages as the controversy raged.

In August, Leffler attended the International Association of Game,



Talk of a statewide antlerless season brought a clash between hunters and the Game Commission. Forest succession was making habitat less suitable for deer in places such as the Dents Run area of Elk and Cameron counties, shown in a 1927 shot.

Fish and Conservation Commissioners convention in Seattle. Pennsylvania's antlerless deer season battle was the talk of the conference. Leffler filled in his colleagues.

"Pennsylvania is facing a new type of conservation at the present time, inasmuch as it is necessary in 1928 to kill to conserve," Leffler said. He explained that hunters would be charged \$2 for a license to participate in the special antlerless deer hunt, and that nonresidents could not participate. County license allocations were determined by a formula that would issue eight antlerless licenses for each buck killed in the county the year before.

As Leffler spoke in Seattle, Pennsylvania newspapers continued to editorialize against the season.

"The grossest miscarriage of justice ever perpetuated upon the sportsmen of Pennsylvania was the ruling by the Game Commission to allow the doe deer to be killed instead of using license fees to import additional bucks," a November 28, 1928, *Lancaster Journal* editorial suggested. "The ruling was so unfair; so inhumane; so out of tune with true sportsmanship that the incoming legislation ought to rip out the commission and fix by statute the game laws of the state as the Legislature used to do. Unless that is done there is no telling what a misguided Game Commission might do in the future."

Hunting clubs launched all-out campaigns to sway the commissioners to cancel the season. They went to court to stop their county's antlerless deer seasons and, in some cases, won. Their members wrote letters to newspaper editors blasting the commissioners and took out ads urging hunters not to buy doe licenses. Hunters also submitted petitions to the Game Commission demanding the hunt be called off, and they asked landowners to post their lands with signs proclaiming "No Doe Hunting."

The pressure got to Truman; he tendered his resignation as executive secretary on December 1, 1928, the first day of the antlerless deer season. The *Philadelphia Inquirer* reported that Truman resigned "as a result of sportsmen's opposition to the commission's action permitting doe deer to be shot and protecting bucks." He told reporters that he was "tired of working for others."

The hunt did take place, and by the end of the special season 25,097 antlerless deer had been harvested. John J. Slautterback of Paxtang,

who was serving as chief of the Game Commission's bureau of vermin control, took over as executive secretary.

Pennsylvania hunters learned within a year that the 1928 doe hunt had not devastated the state's whitetail population as many believed it would. A little more than a month after America's Great Depression began, Pennsylvanians shot a record 22,822 bucks.

While deer certainly got the lion's share of attention during the 1920s, the agency continued to buy and release game in large numbers; implemented trap-and-transfer activities for bears and turkeys in many areas; enhanced habitat; fed game in winter; and continued vermin control programs.

The commissioners imported cottontails from Missouri and Kansas, wild turkeys from West Virginia, raccoons from western states, quail from Mexico and snowshoe hares from Maine. They also stocked ruffed grouse, gray and fox squirrels, and ring-necked pheasants.

In 1924, the commissioners also decided to introduce mule deer to



Although the eastern elk were long gone, imported animals established themselves where the last native populations had existed. The first season for the introduced elk was held in 1923, and hunters killed 23 bulls.

the state. They directed the executive secretary to get 100 young mule deer, in a ratio of one buck to four doe, from the Kaibab National Forest. The western relative of the whitetail would be stocked in Cameron and Potter counties at the Kelly State Game Refuge and the state game refuge at Hull's.

Mule deer were ordered in 1925 at a cost of \$35 each, but the plan progressed no farther. It seems U.S. Forest Service personnel had trouble capturing the animals, and by January 1927 the Game Commission canceled the project.

The commission's elk reintroduction plan proved more of a success. Elk took hold in many areas and even prospered in some regions of the state. Hunters and other wildlife watchers congregated to take pictures of the big animals and feed them. Not everyone was pleased with the program, though. Elk caused considerable crop damage, and in one area farmers refused for a time to let their children go to school because an elk had treed several boys enroute to the schoolhouse. The friction between elk and agriculture led to many illegal elk killings.

Tempers cooled in farming areas when the first bull elk season was held in 1923, two years later than originally planned. Only bulls with four or more points on at least one antler were legal, and still-hunting, or stalking, was the only lawful method to take the animals. Hunters caught conducting organized drives (the primary method of the day for deer and bear hunting) were subject to a \$100 fine. Sportsmen killed 23 legal bulls that year, and four seasons later the bull elk harvest peaked at 26. Harvests in ensuing years did not reach even two dozen elk.

Records show that by 1928 elk were once again restricted to the area of Cameron and Elk counties where the state's last native elk had made their final stand. Rough estimates, which were rarely conservative, suggested the two-county herd numbered in excess of 200 animals. The elk in all the other release areas were gone, taken by hunters, farmers or poachers. The commission soon decided the elk weren't worth the trouble they'd caused and were not compatible with other land uses.

Unlike elk, black bears had never disappeared from Penn's Woods — they just became scarce in many parts. In 1921, the Game Commission launched a bear trap-and-transfer program, which turned out to be an

important and remarkably successful enterprise.

“During the last two seasons,” Gordon reported in 1923, “almost 50 black bears have been trapped and transferred to refuges in portions of the state where many years ago timber was removed, forest fires followed and the last bears were killed out. Through this effort, five different sections of the state have been restocked with black bears, and all indications are that they are thriving splendidly and in a short time the sportsmen will enjoy bear hunting in each of these widely scattered localities.”

The commissioners decided in the mid-1920s to use their wildlife purchasing money to buy small game. Large releases of rabbits, pheasants and quail — and ill-fated experiments with birds such as the Hungarian partridge — followed. The ring-necked pheasant introduction proved a booming success. It wasn’t long before the bird had established populations in agricultural areas, and it quickly became a favorite of hunters.

The Game Commission purchased and released thousands of pheasants across the state, many on refuges. In some cases, sportsmen also petitioned the agency to close pheasant season in their counties. In 1921, for example, 20 counties were closed to pheasant hunting. Such protection allowed populations to grow and expand.



Bears benefited from trap-and-transfer programs. In the first two years, 50 bears were captured in traps similar to the one shown. The animals were then relocated to areas from which bears had vanished.

In 1923 (before the Game Commission was given authority to set seasons), sportsmen asked legislators for year-round protection of hen pheasants. The General Assembly responded by passing such a law, but as pheasant numbers rose, hunters in some areas began blaming large ringneck populations for rabbit declines.

"Quite a number of sportsmen reported in their opinion ringneck pheasants were killing off the rabbits," Seth Gordon reported in 1924. "A careful inquiry was made which developed the fact that rabbits were just as scarce where there were no ringnecks as in section where there were plenty of these game birds. This would apparently disprove the theory that ringneck pheasants were responsible for the scarcity of rabbits."

To meet the growing demand for ringnecks, the Game Commission began furnishing refuge keepers with pheasant eggs to hatch. Keepers received a bonus for each bird they raised to 10 weeks of age. But the effort failed to satisfy sportsmen's appetites, and by the close of the decade, the Game Commission would establish its first two game



While the ring-necked pheasant had taken hold in Pennsylvania, other exotics didn't fare nearly as well. Experimental introductions of species such as Hungarian partridges were failures.

farms. The John S. Fisher Game Farm in Montgomery County and the C.G. Jordan Game Farm in Lawrence County (named after, respectively, the serving governor and director of the state Department of Agriculture) began producing pheasants for release.

“Vermin” control remained an integral part of the agency’s wildlife management strategy. Each year the commission paid enormous sums of money for bounties on animals it considered detrimental to small game, and the organization encouraged its field personnel to kill these species at every opportunity. In 1921, the board spent \$128,269 on bounties. In addition, officers and other employees killed 3,551 crows, 2,362 feral dogs, 1,444 stray cats, 603 hawks, 282 porcupines, 259 weasels, 82 red foxes, 61 gray foxes, 50 bobcats, 63 mink and 43 owls. They also destroyed 227 crow nests, 41 hawk nests and an owl nest. Throughout the decade, the Game Commission annually spent between \$90,000 and \$100,000 — about 10 percent of its annual revenues — to pay bounty claims on foxes, bobcats and weasels. It also hired trapping instructors to teach people how to catch furbearers.

A *Pottsville Journal* article that appeared in October 1929 told of the great number of migrating hawks being shot by hunters from a rocky ridge on the Blue Mountain near Drehersville.

“Chilled by the early October winds, many thousand hawks are sweeping past the mountain pinnacle within 10 miles of Pottsville, inviting extermination, a challenge that has been accepted by local sportsmen and hunters who are shooting hundreds every favorable day,” the article reported.

“Impressed by the unusual opportunity to wipe out thousands of enemies to bird and game life in the state, Carl Raring, Pottsville sportsman and member of the Izaak Walton League, today urged local hunters to cooperate in killing hawks.

“The migrating birds pass within a few feet of the ground at the mountain pinnacle, generally between the hours of 10 a.m. and 3 p.m., only when a northwest or stiff west wind is blowing. With ordinary shotguns, 300 hawks were killed last Friday but, in contrast, the wind was unfavorable on Saturday and not a bird passed the pinnacle.”

The “kill the killers” attitude was not shared by all wildlife enthu-

siasts, especially not the state's growing number of bird-watchers. When the legislature approved and the governor signed a law placing a \$5 bounty on goshawks in 1929, birders throughout the state cried foul — saying the law would lead to wholesale, indiscriminate destruction of all hawks.

An article in the November 9, 1929, edition of the *Lebanon Daily News* indicated the bird-watchers' concerns were justified.

"Over 100 hawks of various species have been sent to the . . . Game Commission for bounty since November 1. Of this number only seven goshawks have been received to date, two adults and five immature birds. The majority of the birds received were red-tailed and red-shouldered hawks. Two specimens of the comparatively rare rough-legged hawk and the rare duck hawk [peregrine falcon], as well as a few of the more common marsh, Cooper's and sharp-shinned hawks have been received."

Despite its problems, the goshawk bounty remained because hunters wanted it. But attitudes on goshawks and other birds of prey were changing. Dr. T. Gilbert Pearson, National Association of Audubon Societies president, was preaching that birds of prey provided invaluable services to farmers and other landowners.

"In the interests of agricultural investments of the country, in consideration of feelings of bird-lovers, for the sake of these great, handsome birds themselves, and in the spirit of fair play, will the game authorities not be willing to discourage statewide bounty systems on the killing of all kinds of hawks; and, will they not accept the offer of the National Association of Audubon Societies to assist in educating people of the country, so that they may be better able to distinguish those species protected by law? Is this not a fair proposition?" Pearson said to wildlife managers at the 16th American Game Conference in New York City. The plea fell on deaf ears, at least in Pennsylvania.

In contrast, some birds were championed by the Game Commission regardless of what they did or who wanted to kill them. In the early 1920s, the U.S. Biological Survey began issuing farmers permits to kill robins from May 15 to July 15 because the birds were eating their berries and small fruits. But the commission would not sign permits for Pennsylvania farmers because robins were protected in the state.

"The people of Pennsylvania are opposed to this slaughter of the

innocents, especially during their nesting season,” Phillips said in 1921. “Our Game Commission has refused to countersign these permits. In fact, our Pennsylvania laws will not permit us to do so.”

But if there was some friction between the state game agency and its federal counterpart, it was mild compared to the political battles taking place within state government itself. When Gifford Pinchot was elected governor in 1922, conservationists throughout the state assumed wildlife and the Game Commission would have a guardian angel for at least four years. Pinchot was considered by many the father of America’s forestry conservation movement, a man who cared deeply about natural resources. Pinchot, a colleague of Teddy Roosevelt, believed in pragmatic, unemotional natural resource management.

But Pinchot quickly announced his intention to reorganize state government, and he proposed making the Board of Game Commissioners a department — stripping it of its executive powers and political autonomy. Funding for the commission would be provided by tax monies; license fees would be deposited into the state’s general fund. The six Game Commissioners were incensed; Phillips, then board president and senior member, threatened to resign if the plan was instituted.

Before Pinchot assumed office, he appointed Frederick C. Walcott, director of the American Game Protective Association, and Ray B. Holland, a former U.S. Biological Survey official, to review the Game Commission and recommend necessary changes.

Both men found everything in order. “Personally, I think it would be a calamity if any other plan were adopted . . .,” Walcott wrote. “I can offer no further suggestions for betterment of the lot of the outdoor man in Pennsylvania. I consider that state foremost among the different states which rank at the top in game matters and I dread to think of tampering with a machine that time has proved to be very nearly perfect.”

Pinchot dropped the game department plan from his reorganization blueprint, but his dealings with the commissioners weren’t over. More friction surfaced in late 1923 when he asked all appointees of his administration, including Game Commissioners, to pledge to uphold

the U.S. Constitution. The pledge was meant as a gesture of support for the 18th Amendment — Prohibition — which prohibited the manufacture, sale and transportation of intoxicating beverages.

In a December 18, 1923, letter, Pinchot asked Phillips if the commissioners were going to take the pledge. Phillips replied by letter eight days later:

“If, Governor, you cannot trust me to serve you after I have taken an oath before Almighty God to support the constitutions of the State of Pennsylvania and of the United States of America, including all of the amendments thereto, I cannot see what faith you could have in any promise I would give you personally. By doing as you ask, I would not only lose the respect of the sportsmen, but, what means far more to me, I would lose my own self-respect.”

On March 20, 1924, Phillips and three other commissioners resigned over the pledge issue: Colonel Henry W. Coulter, Greensburg; William S. Ellis, Bryn Mawr; and William B. McCaleb, Harrisburg. Commissioners Dr. H.J. Donaldson, Williamsport, and John S. Speer, St. Marys, stayed. Within a month, Pinchot appointed new members to the board. At the April 3, 1924, board meeting, a message from the governor was read and entered into the record:

“You have been selected wholly on merit and without regard to political advantage of the Administration. I want you to keep yourselves as Commissioners and all of its subordinates as employees of the state entirely out of politics. You have just one duty, which is to promote the interests of game and the sportsmen of Pennsylvania. Stick to it.”

After Pinchot's first term as governor ended, incoming Governor John S. Fisher offered Phillips a chance to return to the Board of Game Commissioners. Phillips declined.

Even as the commissioners fought for the board's autonomy and worked to sell its wildlife management programs, it also had to deal with an increasing number of hunting accidents. Small game accidents, in particular, had been climbing slowly but steadily for several years. Some people blamed the accidental shootings on irresponsible young hunters, and data collected by the Game Commission gave credence to the accusations.

In some years, up to three-quarters of hunting accidents were

caused by boys from 14 to 17 years old. In 1923, the state legislature mandated that hunters under 16 years of age must be accompanied by an adult, but the problem continued. From 1923 to 1927, hunting accidents averaged about 240 per year in spite of legislation and Game Commission educational efforts. The agency issued safety tips to newspapers and hunting publications, and it worked with sportsmen's clubs to present safety programs to interested hunters. The commission, apparently one of the few state wildlife agencies to consider hunting accidents part of its responsibilities, also analyzed accident data to gain a better understanding of the problem.

Unfortunately, the efforts failed. The number of hunting accidents reached 344 in 1927. The figures for 1929 and 1930 totaled 682 — the largest two-year accident count recorded since the Game Commission began keeping track of hunting accidents in 1915.

The commission continued its work by developing motion pictures that depicted how easily accidents happen and what hunters could do to avoid them. Several hunting clubs advocated a hunter's examination, which would become a reality 40 years later. A 1928 article with a Philipsburg dateline captured the sentiment of some hunters:

"In the opinion of officials and veteran members of the State Centre Game, Fish and Forestry Association, composed exclusively of men skilled in handling firearms and thoroughly familiar with forests and their denizens, the applicant for a hunter's license should be required to demonstrate that he knows how to handle a gun, understands the deadly nature of a shot fired from it, and, most important of all, that those persons who are by disposition known to be irresponsible or 'rattle-brained' be given a license only after they have demonstrated they can function coolly when the firing begins."

Through the decade, the commission worked to refine the game laws. In 1923, the agency and the state legislature drafted a new game code. More than 55 acts were repealed, and the resulting framework — smaller by a third — was easier for both hunters and wardens to understand. The new code increased resident hunting license fees to \$1.25 from \$1 (the fee was raised again in 1927 to \$2); gave the commission the authority to set an antlerless deer season; empowered

the agency to revoke hunting privileges; and allowed landowners to kill deer for crop damage.

As hunting became more of a sport and less of a necessity, game protectors and their deputies became more respected by the public. That respect was helped along by the adoption of uniforms. It was a change long in coming because for many years the agency believed it was unnecessary for wardens to wear uniforms. But officers in surrounding states had them, and there was some evidence that wearing uniforms made game protectors more efficient — and safer.

“Without uniforms,” a Game Commission news release reported, “officers were constantly in danger of their lives when attempting to stop automobiles and in one or two instances were even fired upon and almost run down, drivers believing, no doubt, they were being subjected to a hold-up.”

Wardens performed a variety of duties throughout the 1920s — not all of it relating directly to law enforcement. Officers worked closely with refuge keepers, fed game in winter and destroyed vermin. They also began to trap and transfer game, and band game birds destined for release. Wardens planted seedlings as well, and kept close ties with sportsmen’s organizations.

For all their newfound respect and new uniforms, the game protector’s job continued to be a bit dangerous. Special Deputy Game Protector John O. Powell of Ringtown was escorting two men out of the field for breaking the law when the violators suddenly bolted, took refuge behind a large water tank and began shooting at him. Powell returned fire — killing Frank Wilson of Jersey Shore. The other man escaped.

The 1920s presented the Game Commission with a series of trials by fire. The agency’s survival was no doubt aided by its increasing use of science to determine management strategies and by the willingness of the staff and commissioners to stand by what they believed was best for wildlife. The commission also established itself as a leader in habitat acquisition and management, recognizing that the health of animal populations depended largely on both food and cover. Perhaps most importantly, the Game Commission was learning more acutely the lessons taught by political and social realities as some of its

programs ran against public sentiment. A looming economic collapse and a changing forest would soon make its wildlife management tasks even more complicated.

6



Great Migratory Highway

PENNSYLVANIA was certainly not spared during the Great Depression. More than a quarter, and possibly as much as a third, of the state's work force was unemployed in the early 1930s. Large mills and factories barely remained in production, many mining operations were shut down, and farmers grew crops just to feed their families.

Gifford Pinchot was elected to a second term as governor as the Great Depression tightened its grip. The Game Commission determined in 1931 that another antlerless deer hunt was necessary, and although the increased opportunity to shoot deer for the table would help alleviate food shortages spawned by the Depression, hunters protested. Many said another doe season would ruin deer hunting.

Ross Leffler, commission president, noted in the early '30s that killing antlerless deer was still more a moral issue than a game management one to sportsmen. Even after the big antlerless harvest of 1928, which was followed one year later by a record buck kill, many hunters still believed shooting antlerless deer would jeopardize the herd.

"Sportsmanly chivalry has become so deeply-rooted in the conser-

vation-minded hunters of Pennsylvania that we are finding the second step in game restoration the hardest — getting sportsmen to realize that it is just as important to limit the number of species to within its food supply and to keep the sexes properly balanced,” Leffler said in 1931.

The Game Commission campaigned to win over hunters. Game protectors and other speakers mobilized to explain the need for a doe hunt. They lectured on forest carrying capacities (the ability of land to support wildlife year-round), limiting factors and winter mortality, and they relied on scientific principles and graphic photographs of emaciated deer for justification.

Support for antlerless hunting grew, likely helped by economic conditions. In September 1931, the Game Commission got an endorsement from the Pennsylvania chapter of the Izaak Walton League of America.

“A report of the special game committee [of Izaak Walton] suggested as a remedy to stop the destruction of state and private property by the large deer population that the Game Commission be urged to open the season on deer for both sexes between December 1 and 15, or if this is inadvisable, that some other means be taken to curb the destruction by the overflow deer herd,” reported the *Indiana (PA) Gazette*, on September 24, 1931.

On October 2, the commissioners unanimously agreed to declare a season on both sexes of deer from December 1 to 15. Antlerless deer weighing at least 40 pounds after field-dressing were legal; spike bucks were not. Hunters were not required to have an antlerless deer license.

Just before the 1931 deer season opened, hunters who disagreed with shooting antlerless deer launched one last campaign to sway public opinion. In response, Leo A. Luttringer, editor of the Game Commission’s new publication, *Pennsylvania Game News*, wrote the following in the December 1931 edition of the mimeographed magazine:

“Hunters should not allow themselves to be misled by the statements of people who have no responsibility other than their own selfish interests or desires to voice their own opinions. The Game Commission is responsible to the hunters of Pennsylvania and must have its findings supported by facts. It is the desire of the Commission to

protect the deer herd for future generations but unless the number is kept below a point where natural food supply will be adequate for all game, where natural timber growth and reforestation activities can be satisfactorily carried out, and where orchards and crops of private citizens will not be required to supplement the food supply of our deer, such a decision on the part of the Commission, will, without doubt, meet with considerable opposition sooner or later. Such opposition would be very detrimental to the interests of deer hunters.”

As hunters prepared to head afield in the first statewide either-sex deer season since the Game Commission’s creation, Governor Pinchot reminded them of the importance of wildlife stores.

“The bountiful supply of game to be found in Pennsylvania covers this year may somewhat alleviate the distress and suffering felt by many people throughout the state,” Pinchot said. “I ask every successful hunter to share his bag of game with some needy family. Let no game be wasted.”

More than half a million sportsmen took to the fields and forests during the two-week, either-sex season. By the time it closed, hunters had killed 95,051 deer (24,796 bucks). The take was almost four times larger than 1930’s record total deer harvest of 26,094 (5,979 bucks).

Few people were surprised when conflict arose between Pinchot and Game Commission Executive Secretary John J. Slautterback a few months into the governor’s second term. The trouble, according to an article in the *Philadelphia Public Ledger*, stemmed from Slautterback’s unwillingness to “remove trained game men from his force” to make room for people whom the governor wanted to appoint. The quarrel didn’t last long. Pinchot dismissed Slautterback, the agency’s fifth executive secretary, on June 30, 1931, about five months after the governor assumed office.

Leffler served as acting executive secretary while Pinchot searched for a new Game Commission chief. Within six weeks, Charles G. Stone of Greenville — a firm believer in the value of sportsmen’s organizations and an ardent small game hunter — was chosen. His time in office would be even shorter than Slautterback’s 2½ years.

New troubles between Pinchot and the commissioners began in

June 1931, when three agency clerks and a messenger were fired by the commissioners for sending an anonymous letter to the governor complaining about irregularities in Game Commission operations. After a lengthy investigation, the governor ordered the commission to reinstate the workers.

The commissioners were infuriated by the governor's request and considered it political interference. On December 23, 1931, commissioners J. August Beck, Williamsport; Francis H. Coffin, Scranton; Jared M.B. Reis, New Castle; Harry C. Stackpole, St. Marys; and Leffler resigned. They told the governor they were displeased with his inability "...to defend the Game Commission against repeated intrusion of political influence and other matters in violation of established administration ..."

On January 8, 1932, two days after the governor appointed two new commissioners to the board, the agency reinstated the four employees. Stone resigned as a result. Seventeen days later, board president Adolph Muller of Norristown recommended all four men be fired for displaying a "defiant attitude" since their return. The governor concurred, and the employees were discharged.

In March, Pinchot released a statement suggesting Game Commission personnel matters would be handled differently in the future.

"The decision as to whether or not any man is qualified to work under either commission [game or fish] rests solely with the commissions themselves. They are responsible, and their judgement in this matter is final."

Unlike most wildlife agencies, the Game Com-



The first statewide antlerless deer hunt had not jeopardized the herd as some had feared, and the either-sex season of 1931 brought a record harvest.

mission wasn't strapped for cash in the 1930s. For one thing, each year it sold more than half a million hunting licenses. But the agency had other problems with which to deal, one being the lawlessness spawned by the Depression. Poverty-stricken residents were hunting game out of season, without licenses, in excess of the bag limits, and after dark. Over the winter of 1930-31, game wardens wrote citations for a record \$96,251 in fines. The word soon spread that the Game Commission was not going to tolerate illegal hunting under any circumstances, although the agency did concede to the economic crisis when it came time to assess penalties.

"Unemployment and business conditions touched such a low ebb in the winter of 1931-32 that to have inflicted the full penalties of the Game Law upon offenders would have only increased the suffering of their wives and children," Ernest E. Harwood, who succeeded Stone as executive secretary, reported in 1932.

Many unemployed people pursued bobcats, gray foxes, weasels and goshawks for bounties during the Great Depression. The bounties were rewarding. A bobcat, for instance, paid \$15; a goshawk, \$5; and a gray fox, \$4. During the first five years of the Depression, the Game Commission paid more than \$520,000 in bounties, which likely made life easier for thousands of Pennsylvanians.

However, predator bounties, especially those for raptors, were becoming increasingly unpopular. In 1931, Pinchot joined the ranks of those calling for an end to bird of prey bounties. The governor asked commissioners to support a bill before the General Assembly calling for a repeal of the 1929 goshawk bounty act.

The commission apparently saw merit in the issues being raised by raptor preservationists, but at the same time it recognized that hunters weren't ready for the change. In an apparent effort to keep the peace between both factions, an article appeared in the November 1931 issue of *Pennsylvania Game News* advising hunters how to differentiate between "good" and "bad" hawks.

"Remember the good hawks have short tails and long wings and soar much like a turkey vulture, and that the bad hawks have comparatively short wings and long tails and beat their wings rapidly, often

holding themselves in mid-air for a moment before diving for their prey. The bad hawks constitute the goshawk, Cooper's hawk and sharp-shinned hawk."

In the fall of 1932, Philadelphia photographer Richard Pough visited the by then infamous hawk slaughtering grounds atop the Blue Mountain near Pottsville. He was appalled by what he saw and decided to put an end to it. Through his graphic pictures, Pough alerted conservation organizations to the dangers migrating hawks faced. In August 1934, Rosalie Edge, who headed an organization she developed to react quickly to wildlife crises, toured the mountain with Pough. She decided to buy it that day. Edge leased the land for \$500, with an option to buy 1,398 acres for \$4,000. The area, named Hawk Mountain Sanctuary, became the first refuge in the world set aside specifically for the protection of birds of prey.

Although the sanctuary was a big step in raptor protection, bounties were still offered for some species. During the winter of 1935-36, a record 701 goshawks were shot and submitted for bounty. The following winter, 1,080 were turned in.

In a July 1936 *Pennsylvania Game News* article, Pough asked



The Blue Mountain in Berks County was a major hawk migration spot, and hunters gathered there each fall to shoot raptors by the thousands. A woman named Rosalie Edge bought land on the mountain and prohibited hawk shooting, creating Hawk Mountain Sanctuary.

hunters to join the raptor protection movement. The state's geographic location, he wrote, made Pennsylvania's involvement critical.

"Pennsylvania, lying as it does, on the great migratory highway of thousands of hawks, is in a particularly strategic position with regards to the future of these birds," Pough wrote. "Carefully protected by law in the states where they nest and to whom they may be more properly termed to belong, these birds that pass only a few days at most in Pennsylvania are killed by the thousands, while in contrast the states where they normally reside over the greater part of the year protect them."

Pough's efforts, coupled with continual pleas from bird-watchers across the state, apparently moved state legislators to act. In 1937, the General Assembly approved, and Governor George H. Earle signed, a law protecting all raptors except goshawks, Cooper's hawks, sharp-shinned hawks, great horned owls and snowy owls. But the protection was conditional. Birds could be killed "... when caught in the act of destroying domestic livestock, poultry, game, other protected birds their nests or young, or fish in private ponds ..." They also could be shot after the fact, should they be seen killing another animal. The legislation was an important victory, but it didn't put an end to raptor destruction. Anyone caught shooting protected hawks could simply say the birds were swooping at rabbits or robins.

One month after most hawks and owls were protected by law, the Game Commission placed a \$2 bounty on adult great horned owls and \$1 bounty on their fledglings. The raptor was added to the bounty list "on an experimental basis," the commission said, "to determine whether such a reward will aid in reducing the number of these game destroyers." The bounty lasted for about two years. But it returned five years after that and remained on the books until all bounties were discontinued in Pennsylvania during the mid-1960s.

In July 1938, *Pennsylvania Game News* published a Game Commission study of more than 2,800 hawks that revealed birds of prey such as red-tailed, red-shouldered and broad-winged hawks were not detrimental to game populations. The study showed raptors primarily ate mice, shrews, grasshoppers, beetles and snakes. Few took game animals, and when they did it was usually a sick or injured animal.

Hunters' contempt for such studies manifested itself in 1940 when

the Pennsylvania Federation of Sportsmen's Clubs recommended "the removal of red-tailed hawks from the list of protected birds and that all hawks, except the sparrow hawk, be placed on the unprotected list."

Nationally, the bounty concept was being closely examined as a wildlife management tool. Men like Aldo Leopold — whose 1949 classic, *A Sand County Almanac*, set the tone for modern conservation — raised doubts about the effectiveness of bounties. "We submit that game officials often resort to indiscriminate predator control before food or cover improvement has even been given a fair trial," he told the American Game Association's policy committee in 1932. "As a rule, the latter are much more promising as a means of building a game supply."

A few years later, Richard Gerstell, one of the agency's first full-time wildlife researchers, said the state should end its bounty program for goshawks and bobcats. He pointed out that bobcats were on the verge of extinction. Gerstell also recommended ending or reducing bounties on weasels and gray foxes. His report convinced the commissioners to remove the bobcat bounty in 1937; the goshawk bounty was reduced to \$2 from \$5, and the weasel bounty was halved to 50 cents.

In the 1930s, coyotes began to show up in Penn's Woods. Whether they were new to the state or simply returning to their former range has never been established. The first ones captured were "coydogs," a hybrid of domestic dogs and coyotes. In 1934, three coydogs were taken in Washington County. Four years later, an apparently full-blooded eastern coyote was trapped in Elk County.

Although several studies pointed to the futility of introducing non-native species, the Game Commission's success with the ring-necked pheasant — an exotic — moved the agency to experiment further with wildlife introductions. The commission believed the importations would provide more hunting opportunities and at the same time decrease pressure on native game species.

Data from leg-banded Mexican quail soon proved the species didn't belong in the state. In one study, 5,000 Mexican quail were banded and released in counties bordering Ohio, West Virginia, Maryland, Delaware and New Jersey. Hunters were instructed to return the bands on

quail they shot; only 12 bands came back. A second study yielded similar results, and the agency ended the project.

Unfazed by the failure of Mexican quail to take hold, the agency stocked Reeves pheasants, chukar partridges and sharp-tailed grouse. A total of 723 Reeves pheasants was released in Cameron, Chester, Jefferson, Luzerne and Lycoming counties over a five-year period, but the effort was unsuccessful. Some sportsmen believed the Reeves pheasants didn't make it because hunters mistook the mottled brown hens for grouse. Others believed the brightly colored males were easy marks for predators. Wildlife experts pointed to habitat deficiencies.

"Past experience points to the fact that the climate, soil, natural food and cover in which it was necessary to introduce the Reeves were not particularly favorable or of sufficient similarity to conditions in its native land," Charles Wessel wrote in a 1939 *Game News* article.

Despite the stocking of more than 2,000 chukars in northwestern counties during the late '30s, the partridge was not able to establish self-sustaining populations. Each time they were released, the chukars dispersed and vanished within a few weeks.

"Apparently all [chukar] plantings made by the Commission have failed, while private efforts along the same lines have met with the same fate," Gerstell reported in 1940. "In view of this fact, attempts to establish the species are being discontinued, though 500 birds now on hand will shortly be released in the wild because it has been impossible to dispose of them otherwise."

The sharp-tailed grouse, 192 of which were released in 1934, met a similar end.

The elk, another stocked species, was not faring well either. In 1930, the bull elk harvest dropped to five, sparking concern among sportsmen. The following year, only one bull was killed in what would become Pennsylvania's last elk hunting season.

The failure of exotic wildlife to prosper in the state was a fairly minor problem when compared to the plight of some native species. Waterfowl numbers were crashing in Pennsylvania and across the rest of the country despite protection provided by federal and state laws. Much of the waterfowl decline was caused by loss of habitat due to drainage and

drought, although pollution, disease and overshooting contributed to the drop.

Since its infancy, the commission had worked diligently to improve waterfowl populations in the East. It was the first state to call for a halt to spring duck hunting and one of the first to establish waterfowl bag limits. In 1911, it further restricted waterfowl hunting, making it illegal to hunt ducks before sunrise.

Federal efforts got underway in 1914 when President Woodrow Wilson empowered the U.S. Department of Agriculture to adopt regulations and establish hunting zones for migratory birds. That same year, the federal government banned wood duck hunting in Pennsylvania and 14 other states for five years. In 1918, Wilson signed the U.S. Migratory Bird Treaty Act, paving the way for international cooperation in waterfowl conservation efforts. The U.S. Migratory Bird Conservation Act of 1929 authorized the federal government to buy lands for bird refuges.

In response to the 1931 breeding waterfowl population survey, considered the worst on record, President Herbert Hoover slashed the duck season from 100 to 30 days. Later that same year, the American Game Association proposed the creation of a \$1 federal license to shoot migratory birds. In addition, it suggested placing a one-cent tax on each box of shotgun shells.

The “shell tax” was vigorously opposed by Game Commissioner Adolph Muller and others. “We are all agreed on protecting migratory game birds,” Muller told the *Philadelphia Public Ledger* in March 1932. “But the sportsmen and game authorities do not believe the burden of protection should be placed on all the gunners, without regard for the fact that millions of them would not benefit from the fruits of the tax.”

However, hunters and conservation leaders in most states, including Pennsylvania, favored the federal license. On May 9, 1932, a “Duck Stamp Bill” calling for a \$1 federal migratory bird hunting license was introduced in the U.S. Senate. The shell tax proposal disappeared, but it took the license legislation nearly two years to make it to President Franklin D. Roosevelt’s desk. Along the way, the Game Commission urged legislators, wildlife administrators and hunters to support it.

Ernest Harwood told hunters in a 1932 issue of *Pennsylvania Game*

News that the effort needed their help. "Sportsmen! The Game Commission has spent sleepless nights in its effort to protect your interests. Now it's up to you to throw every ounce of your weight into the fight in an effort to ensure the passage of this constructive piece of conservation legislation."

Former Commissioner John M. Phillips also campaigned for support. "Before I die I want to be able to say that I have paid a dollar in order that my children and grandchildren may have the same sport that I enjoyed," Phillips told those attending the 21st International Association of Game, Fish and Conservation Commissioners in 1933. "There is only one way of doing it. I am going to try to pay a dollar somehow; I am going to ram it down somebody's throat if necessary. . . . But, gentlemen, we must do something, or our ducks are gone."

On March 16, 1934, the federal waterfowl hunting license became law. The first actual duck stamp, featuring a pair of mallards, went on sale that August. The \$1 stamp was purchased by 635,000 hunters and collectors. In addition, the U.S. Biological Survey received a \$6 million allocation to establish waterfowl refuges.

A year later, the Game Commission set up the state's first waterfowl refuge at Crawford County's Pymatuning Reservoir. The 3,600-acre refuge quickly became an important resting area for migrating waterfowl and breeding spot for various species of ducks and geese.

Waterfowl also got help from the state's beavers, whose populations had returned in some strength following the reintroduction efforts of the late Teens and early '20s. Beaver dams created excellent wetland habitat, but many property owners objected to the byproducts of the beavers' labors — flooded roads and fields, and felled timber. Landowners wanted the commission to do something about the situation. The problem became so widespread by 1931 that the agency decided to have game protectors survey their districts for beavers and then, after spring thaw, shoot or trap the large furbearers.

The plan sprang from fears that a trapping season might wipe out beaver populations, a legitimate concern considering beavers had vanished from the state about three decades prior. But following lengthy discussions, the game protector strategy was cashiered in favor of the trapping season the commissioners had tried to avoid. The

state's first beaver trapping season (none had existed when the animals originally lived in Pennsylvania) was scheduled for March 1, 1934. The announcement came well in advance of the seven-week season, giving trappers ample time to secure equipment and learn the recently adopted beaver trapping regulations. It also gave people time to object to the season.

"Furriers and their agents will move March 1 against Pennsylvania's beaver population and it is predicted that within a month not a beaver will remain alive," newspaper columnist Mel James wrote in October 1933. "Sportsmen are up in arms against what they call the most brutal order ever issued by a game-control body."

Although a judge granted an injunction preventing the Game Commission from holding a beaver season in Forest County, and former commissioners John M. Phillips and Ross Leffler spoke out against the plan, the season went off without incident. Trappers took 6,455 beavers, which sold for an average of \$9, in 50 counties. Potter County led all others with a harvest of 1,092 beavers, far ahead of Sullivan, 483; Centre, 358; Elk, 356; Warren, 336; and Cameron, 327.

Two years later, the Game Commission held a two-week beaver trapping season, and sportsmen harvested 2,261 animals. From that point on, beaver trapping remained a regular part of the trapping season structure.

One of the most popular game animals in the state was the cottontail rabbit. It was found across the commonwealth, and the Game Commission received more requests to stock rabbits than any other animal. Through the 1930s, the Game Commission annually stocked between 50,000 and 60,000 cottontails it bought from Missouri and Kansas. But hunters in those midwestern states didn't like their rabbits being shipped to Pennsylvania. Furthermore, research by University of Michigan professor Howard M. Wight suggested in 1936 that stocking rabbits in Pennsylvania was a waste of time and money.

Hunters would be better served, Wight said, if the commission would emphasize rabbit habitat development, supplemented by trapping and redistribution. The commissioners agreed, and the agency

launched an aggressive habitat enhancement program on game lands. As the '30s came to a close, though, rabbits were still being imported from the Midwest. In 1939, for example, the agency purchased 70,000 of them. But in addition to the importations, the Game Commission and sportsmen's clubs began using box traps and conducting large, carefully planned drives to capture cottontails for redistribution.

Wild turkeys also received a good deal of attention. The commissioners established a turkey farm on roughly 1,000 acres in Juniata County's Lack Township in 1930. The facility began producing wild turkeys for restocking in a matter of months. In its first two years the farm hatched 720 wild turkeys from 3,566 eggs, and the birds were stocked in counties closed to turkey hunting.

In 1936, the Game Commission augmented its turkey program by establishing "wild turkey mating areas." The fenced areas were located on refuges in good turkey range and were designed to lure in wild gobblers to mate with wing-clipped hens. A year later, Seth Gordon



Rabbits were extremely popular with the state's hunters, and the Game Commission imported rabbits by the tens of thousands. Here, a shipment arrives at the Harrisburg freight station. The agency also worked extensively with sporting groups to trap rabbits and relocate them.

(who was beginning his second term as executive director) reported that “selected breeding hens from the state’s farm produced a total of 4,431 eggs in these eight- to 12-acre enclosures, resulting in the production of 1,428 wild turkeys of superior quality.”

Gordon took the helm again in 1936, succeeding acting executive secretary William C. Shaffer. Shaffer had served as the Game Commission’s chief administrator for two months after Harwood left in 1935. Shaffer returned to work as a divisional manager for the agency when Gordon took the position, which was renamed executive director in 1937.

The Game Commission’s research efforts got a boost in late 1937 when the agency entered into an agreement with Pennsylvania State University and the U.S. Department of Agriculture to form the Pennsylvania Cooperative Wildlife Research Unit at State College. The unit’s aim was to find solutions to current wildlife problems and study the biology of game animals. A year later, the commission also established a cooperative research program with the University of Pennsylvania.

One of the biggest problems with research was its presentation. Scientists wrote on a level most hunters didn’t understand, and the jargon often baffled or confused potential allies and people who cared about conservation.

“We are, I think, a little overdue in translating game research into the language of the barber shop and the sporting goods store,” Aldo Leopold said at the 20th American Game Conference in 1934.

To get the word out, the Game Commission used news releases, radio, *Pennsylvania Game News*, movies and speaking engagements. Educational displays and a traveling wildlife circus also reached thousands of people.

“The Game Commission’s educational program is one of the most powerful mediums for promoting the commonwealth’s extensive system of game management,” Gordon wrote in 1936. “Through it, not only sportsmen but the people of the state generally are becoming more conservation minded.”

Still, education efforts didn’t make wildlife management an easier task. “Conserving wildlife has become a serious public business, actively supported by high government officials from President

Roosevelt on down,” Gordon wrote in 1937. “It has also attracted to the sidelines the greatest body of ‘friends’ and ‘advisors’ on record; all of them seeking to influence the running of the business. Sentiment and thoughtless sympathies dominate too many of their demands.

“The wildlife administrator — and I speak as one — functions as best he can in the middle of the hubbub. He’s in a position not unlike that of the varsity football coach surrounded by alumni. If there’s a scarcity of game, he’s condemned. And if he produces too much he’s liable to be crucified. All too often the sensible management that would provide the ideal, well-rounded conservation program is balked by misunderstanding. Mere protection, and more and more restocking, I can show, will not insure an abundance of wildlife.”

Educating hunters about firearms safety was just as important as teaching them about research findings. In 1931, a record 439 people were accidentally shot in hunting accidents. Seventy-two died. The shootings prompted Governor Pinchot to suggest perhaps it was time to ban high-power rifles.

“I have long believed and often said that the unnecessary powerful rifles ought to be outlawed for hunting,” Pinchot said. “Many lives would be saved every year if they were.”

The commission intensified efforts to teach proper gun handling and how to hunt safely. It also became one of the first organizations in America to advocate wearing “plenty of red” as a safety color. In 1935, recently elected Governor George H. Earle signed a law authorizing the Game Commission to revoke the hunting licenses of people who carelessly handled firearms while hunting.

But not even the threat of license loss compelled hunters to act more safely. That year, 55 hunters were killed — and 252 injured — in accidental shootings. Hunting accidents showed no sign of diminishing as the decade came to a close.

Just as it adopted new ways to teach people how to hunt safely, the Game Commission also adopted new law enforcement methods to catch game thieves. In 1930, the agency implemented a car-searching program to catch those who killed more game than they were permitted. Its worth as a deterrent extended beyond wildlife regulations.

"The car-searching campaign inaugurated by the Game Commission last year served its purpose admirably, as game officials are finding few hunters possessing more than the legal limit of game this season," Luttringer reported in the December issue of *Game News*. "Last season, game hogs tried many ways to smuggle extra game through the lines. It was found under rear seats, in rumble seats, under the hood, tied under the car, and in every other conceivable hiding place. The funny thing about the whole business was that some hunters, as well as others, thought the searchers were looking for other things and hurriedly got rid of wine and cider jugs before officers had time to approach their cars, and these were found in the ditches alongside the road, after the cars were permitted to pass."

Car searches weren't the only searches game protectors conducted. In early 1932, wardens and their deputies participated in the nationwide search for Charles Lindbergh's kidnapped son. "Every field officer of the state Game Commission has been instructed to make an extensive search of their various sections, patrolling them regularly,



Game protectors began a car-searching campaign designed to catch people who killed more than the legal limit of game. Officers found game stashed in every conceivable hiding place a car offered.

and visiting all vacant dwellings, hunting camps, abandoned farm buildings or other shacks in the mountains,” the *Fulton County News* reported in March.

Pennsylvania’s game protectors saw their responsibilities increase during the 1930s with the passage of Pennsylvania’s Roadside Menagerie Act and the advent of the federal duck stamp program. The Roadside Menagerie Act, implemented in 1936, authorized the Game Commission to enforce new laws regulating the display of wild animals for commercial purposes. Menageries, used to attract passing motorists to inns, restaurants and gas stations, were popular throughout the state during the decade. Menagerie animals were often poorly kept, and some menagerie managers exposed spectators to unnecessary danger. The danger posed by some menagerie animals wasn’t limited solely to spectators. In late 1936, a Bedford County man shot an escaped adult leopard in the mountains near St. Clairsville. Likewise, a squirrel hunter shot a timber wolf that had gotten loose.

Game protectors unofficially assumed responsibility for enforcing the duck stamp law in 1934. Federal wildlife agents were charged with making sure waterfowlers had purchased and were carrying their duck stamps, but because the state had only one such officer, the task often fell to state game protectors.

Game wardens were permitted to patrol their beats as they saw fit, although at times the commissioners issued rules covering law enforcement activities. In 1936, for example, they asked game protectors to patrol as much ground on foot as possible — in order to increase effectiveness and save automobile mileage.

At least one officer took patrolling to new heights, according to a 1931 Associated Press story. “The vertical landing ability of an autogyro [a rotary-wing aircraft that employs a propeller for forward motion and a freely rotating rotor for lift] has been called upon to play an important part in a crusade against illegal hunting and excessive killing of game in Montgomery and Bucks County,” the article reported. “Hunters without the conspicuous license tags on their backs were spotted easily by observers in the plane. Pennsylvania’s small game season opened yesterday and already more than a score of offenders have been arrested and fined.”

Fines were steep for some game law violations. In 1931 the fine for

attempting to shoot a deer with the aid of an artificial light (jacklighting) or a vehicle was \$500 — enough money at the time to buy a car. In one case, three violators unable to pay their fines were sentenced to 500 days each in the Union County jail. The jacklighting penalty was reduced to \$100 in 1935, but two years later it was amended to include the forfeiture of the vehicle and other equipment used in the crime.

For years, the Game Commission had been holding occasional conferences to keep officers abreast of changes in wildlife law and enforcement issues, and to provide specialty instruction. The agency's desire to improve game protector training led to talk of establishing its own training school. The training school idea slowly but surely gathered support. Then board president Ross Leffler championed the cause, and in October 1931 the commissioners directed him to "proceed with the establishment of a training school." Although Leffler resigned from the board three months later, his work continued.

On July 7, 1932, the agency dedicated the Pennsylvania Game Commission Training School near the town of Brockway on State Game Lands 54 in Jefferson County. The school, an old hunting lodge owned by a Pittsburgh attorney, was founded to provide one-week blocks of special training and refresher courses to officers. The school operated six weeks a year. Four years after it was established, and shortly after Leffler began serving a second term as a commissioner, the school became a permanent game protector training center, the first in the country.



The Game Commission established the nation's first training school for game protectors in 1932. It was located near Brockway, Jefferson County, and was moved to the Harrisburg headquarters in the 1980s.

In early 1936, the Game Commission announced it was looking for 35 men between the ages of 21 and 40 to become “student officers” in the school’s first class. More than 2,000 men asked for information on the school and nearly half of them filed applications. From this field of candidates, 434, representing every county, were chosen to compete in entrance examinations. On July 7, 1936, 35 prospective officers, averaging 25 years of age, enrolled in the nation’s first wildlife conservation officer school. Eight months later, 27 men graduated and were awarded their diplomas in a ceremony at the capitol.

The Game Commission also began assigning officers to undercover investigations in 1936, and a year later the commission set up a special investigations unit in Harrisburg.

Pennsylvania’s wildlife laws were continually reviewed by the commission, and by sportsmen and legislators. In 1937, the Game Code was overhauled and renamed the Game Law. In the process, the agency’s name was officially changed from Board of Game Commissioners to Pennsylvania Game Commission. Commissioners’ terms were increased to eight years from six.

The revision of game laws also limited small game hunting parties to five people and made it illegal to hunt while intoxicated. The changes did not, however, affect those who hunted from tree stands — a practice considered controversial by some.

“The committee eliminated entirely from the bill a new provision to discontinue the practice of sitting in trees to bag deer, proposed as a safety measure,” Luttringer wrote in a 1937 issue of *Game News*. “The ‘sit-up’ deer hunters, those high-power rifle experts who hie to an eerie [sic] perch to spot their buck far away with a telescope — if they live to reach their favorite rocking chair high above the ground — may still continue this doubtful practice.”

Because the Game Commission was well-funded even through the Depression years, it was able to push forward with an aggressive land acquisition program. In a two-year period at the beginning of the decade, the agency purchased 146,590 acres, more land than it had collectively bought in the previous eight years. By the end of the decade, the Game Commission’s landholdings totaled 661,809 acres.

decade, the Game Commission's landholdings totaled 661,809 acres.

"The lands program of the Pennsylvania Game Commission, as developed during the past two decades, was a unique pioneering venture," Gordon wrote in 1940. "While there may have been misgivings in certain quarters about the plan when it was inaugurated, today there is no longer any doubt about its value. In no other state has such a comprehensive system of refuges and public hunting grounds been established and developed with the funds contributed by the sportsmen, those outdoor citizens of the commonwealth who will always be the chief beneficiaries of the novel undertaking."

The increase in acreage brought with it rising demand for human resources to perform management work. Help came from two Depression-era federal programs designed to create jobs: the Civilian Conservation Corps (CCC) and Civil Works Administration (CWA).

The CCC, founded in March 1933, employed young men to perform conservation-oriented projects. They were paid \$30 a month, \$25 of which had to be sent home to their parents. In 1933, six CCC camps of about 225 people each were established on state game lands. The young men built fire protection roads, planted trees and shrubs, constructed feeding shelters, and performed other habitat and property improvement tasks.

Sometimes — the winter of 1935-36, for example — the CCC provided unique assistance. That winter the commission embarked on the most extensive game feeding program in its history, and men from the CCC carried tons of grain and other wildlife food on their backs to reach stricken animal populations.

The CWA, founded in November 1933, also furnished manpower to the Game Commission. By the time Christmas rolled around that year, about 1,000 men were given employment on game lands and game farms. Under a special arrangement, the commission gave the workers tools and supervision, and the federal government paid them. The CWA performed projects similar to those of the CCC.

"During the winter of 1933-34 . . . CWA workers opened up 1,140 miles of fire trails along boundary lines of state game lands, and in addition opened up 457 miles of interior fire trails and roads, and constructed 5 miles of new roads," Harwood wrote in 1934.

Within a year, the CWA was phased out, but the Works Progress

Administration and National Youth Administration provided the commission with manpower to clear and build roads, prune trees, make signs, construct buildings and dams, and other such work. The agency benefited from these relief programs, getting a lot of work done for little money. In return, Pennsylvanians had jobs and improved wildlife habitat.

In 1936, the Game Commission changed its land management policy. The commissioners opted to slow down on land purchases, especially in heavily forested areas, and allocate more money to enhance habitat on game lands. In addition, the agency decided to improve small game hunting and buy more game lands in agricultural areas near large towns and cities.

The new land management policy called for more projects that would provide wildlife food and cover — cutting trees to stimulate sprout growth and provide browse for deer; planting nut, berry and evergreen trees; establishing food plots of grains and legumes; and constructing feeding shelters. In accordance with the new policy, the commissioners in 1936 approved the first timber sales on game lands.

An experimental Cooperative Farm-Game Refuge program, developed to improve small game populations in farming areas and increase public access for hunting on agricultural lands, was implemented in 1936. A cluster of 10 Chester County farms comprising 1,507 acres was chosen as the first site. Participating farmers received incentives such as game bird stockings, payment for leaving crops stand through winter, land enhancements beneficial to small game, and protection against careless or unethical hunters. For those considerations, farmers left their lands open to public hunting.

Safety zones (buffer areas around occupied buildings within which sportsmen were not permitted to hunt) were posted on each project farm. In addition, refuges were established and cordoned with wire on most farms. In some cases, the agency planted wildlife food plots or constructed wildlife feeding shelters on enrolled properties. The commission also provided predator control services. The projects helped small game and, more importantly, provided good hunting within a short distance of Philadelphia and Pittsburgh.

The Cooperative Farm-Game Refuge program, originally targeted for eight counties in southeastern and southwestern Pennsylvania,

quickly became popular with both sportsmen and farmers. It soon spread to 21 counties. By 1939, the program had expanded to 27 counties and had enrolled more than 100,000 acres of farmland; more than 1,600 farms were participating as the decade closed.

The focus on land management, together with increased wildlife research efforts, highlighted the diversification taking place within wildlife agencies such as the Game Commission.

“In the early days,” wrote Seth Gordon in 1940, “the main function of the Commission was to protect game. This involved law enforcement, the establishment of seasons and bag limits, proposed game legislation, the development of game refuges, etc. In recent years, restoration has become as important as protection. Improved highways have opened up game lands hitherto almost inaccessible; new species of game have been introduced; the size and type of game refuges have changed; food and cover development has become a major problem. In addition, the land holdings of the Commission have grown enormously, making the problem of land management and maintenance a major one.”

These “problems” — more money for more land management projects on a growing land base — were helped by passage of the Pittman-Robertson Federal Aid in Wildlife Restoration Act in 1937. The historic legislation, popularly known as Pittman-Robertson or simply P-R, directed an existing federal excise tax on guns and ammunition into a fund from which the federal government would dole out money to state agencies. The federal government, through Pittman-Robertson (often simply referred to as P-R), would fund three-quarters of federally approved projects, leaving the states to pay only 25 percent.

State funding allocations were determined by a formula that took into account the number of hunting licenses a state sold and how much land was found within its borders. The excise tax brought in close to \$3 million in its first year.

The Game Commission conducted its first Pittman-Robertson-sponsored project, an economic survey and inventory of furbearers, in 1938. The state’s P-R apportionment for that year was \$46,026. By

1940, the annual allocation had increased to nearly \$120,000. Pennsylvania's large number of hunters ensured a generous allocation, funding that would help keep the agency in good stead through the remainder of the Great Depression and through the war years that followed — when revenue would become closely guarded.

The 1930s were a decade of expansion, enhancement and enrichment for the Game Commission. While some states were trying to establish workable programs, Pennsylvania was defining the direction of wildlife conservation. In the fields of law enforcement, land management, wildlife research and hunter education, Pennsylvania led the way. And the state's game populations were healthy as the nation plunged into the Second World War.

7



Answering the Call

THE PUSH of industrialism brought on by World War II concerned many conservationists. In Pennsylvania alone, more than 8,000 plants were manufacturing war goods such as clothing, petroleum products, steel, cement, ships and ordnance. Military depots and supply centers sprang up across the commonwealth.

“We must not let war hysteria blind us from the fact that the natural resources of America are the very foundation of its strength and of its wealth,” Izaak Walton League director Kenneth A. Reid told the North American Wildlife Conference in 1941.

“I feel that conservation of natural resources is the most important long-time problem before this nation. War scares, labor wars, the condition of the budget, and other front-page news may be more immediately pressing, but in another decade they will be history. That is not the case, however, with the problem of intelligent husbandry of our natural resources.”

War concerns aside, the state’s buck season opened on December 1, 1941 — a week before the Japanese attacked Pearl Harbor. A record number of licensed hunters took to the woods with high expectations; the 1940 either-sex season, which lasted 13 days, had resulted in a

harvest of 186,575 deer. But a reduced deer population, coupled with foggy and rainy weather, put a damper on the 1941 hunt.

"Many hunters, who could stay in the deer country (northcentral counties) only a few days because of industrial conditions, lost their chance to bag a buck largely because they were unable to see antlers at a distance," wrote Executive Director Seth Gordon in his annual report.

One week into buck season, when news of the Pearl Harbor attack came, deer hunting suddenly lost its luster for many sportsmen. Within three weeks, rationing and price control measures were implemented by the federal government. Little was wasted, and game harvested by hunters and trappers took on a new importance. Some wildlife products were in great demand. Deerskins were solicited for making gloves, mukluks and vests. Animal fats were used in the manufacture of munitions and soap. Hunters were asked to contribute their duck and goose feathers for sleeping bags and aviators' vests. Wildlife byproducts such as these, historically discarded by many, became commodities overnight.

Collection points for these unrefined goods were set up all over the country. Ducks Unlimited collected feathers in Seattle, and the Izaak Walton League of America manned a



World War II brought a great demand for wildlife products. Hunters donated deerskins, animal carcasses, and goose and duck feathers for the war effort. Pennsylvania alone accounted for 7,000 deer skins for gloves and 94 tons of grease for ammunition manufacturing in 1942.

collection point in Chicago. The Game Commission and the International Leather Workers Union procured deerskins in Pennsylvania, and commonwealth fur dealers and rendering plants saved furbearer fats.

In 1942, the first year of the wild resources collection campaign, Pennsylvanians donated more than 7,000 deerskins — hides from about a quarter of the deer harvested — and 94 tons of grease. The deerskins were used to produce roughly 28,000 pairs of gloves. The collected animal fats provided enough glycerine to manufacture close to two million rounds of .50 caliber ammunition.

In response to the war, the Game Commission increased timber sales on game lands, curtailed its wildlife feeding and deer fencing programs, and closed the training school and Pymatuning museum. A third of the agency's field staff, many office employees, and the chief of research left for the war. Many employees did the work of two or more people. On some occasions, game protectors solicited help from sportsmen to perform field tasks.

Game Commission President Ross L. Leffler was pleased with how the agency's operations were proceeding. In a January 1944 *Pennsylvania Game News* editorial, he offered praise to employees and sportsmen.

"In the last 12 months, and the 12 months preceding, you have given unstintingly of your time and effort to help offset the temporary loss of those who have answered the call to the colors in order that we could keep our conservation house in order pending their return to private life. You have all applied yourselves diligently and painstakingly to the tasks assigned you, and have helped to maintain a morale which has been high enough to elicit words of praise from others.

"Perhaps you have felt you were just doing your job; believe me when I tell you that you were doing more than your job. You have made it possible for the Commission, not as individuals but as an institution, to maintain the same high standards of performance during war that it maintained during peace."

In addition to their normal game management and law enforcement duties, game protectors participated in home front defense efforts by helping the Federal Bureau of Investigation conduct surveillance on people suspected of being Nazi collaborators and sympathiz-

ers. In June 1942, when FBI agents arrested Nazi saboteurs who'd landed rafts on the shores of Long Island and Florida, America suddenly became concerned for its security. Game protectors, fish wardens and forest rangers were authorized to arrest people suspected of sabotage.

Game protectors who joined the armed forces seemed better prepared to handle military duties than many recruits, and commission officials attributed this preparedness to the training school.

"The Commission's Training School has truly been a prep school for those of its employees who joined the U.S. military forces," Gordon wrote. "The semi-military discipline, the regularity of activities, and the amount of military drill, athletics, rifle and revolver instruction, have all paid big dividends to the officers of the Commission who are serving their country in World War II.

"Their letters clearly indicate how highly they value the instruction received at the school, and the ratings and assignments they have attained in all branches of the service bear further proof of the value of the training program."

During the war years, the Commission anticipated a drop in license sales because men were enlisting, being drafted and working long hours in factories. The commissioners created a wartime reserve in 1941 to help the agency through what it expected would be lean times, and by the middle of 1945 it had put back \$1.3 million. But the fund turned out to be unnecessary. Throughout the war, hunting license sales averaged 600,000 per year.

More than 1.2 million Pennsylvania men and women, or about one of every eight adults in the state, served in World War II. At least 33,000 Pennsylvanians didn't come home. Those who did found the state's hunting and trapping as good as or better than when they left. A wartime pledge that originated at a sportsmen's club in Wellsboro, reported in April 1942 by U.S. Fish & Wildlife Service (formerly U.S. Biological Survey) Director Ira Gabrielson at the Seventh North American Wildlife Conference, had apparently been kept.

"I pledge my heart and my right hand to my flag and my country. I further pledge myself to help carry out the wildlife conservation program, now in progress, to the end that your boy and my boy, now serving his country, may find the good hunting and fishing he has a

right to expect, when he returns to civil life.”

A number of problems confronted the agency at war's end, one of the most pressing an apparent increase in fox populations. Fox numbers had risen to the point that the animals were, according to Gordon, “causing considerable damage to small game, livestock and poultry.” The commission established a predator control committee to study the problem.

In 1945, trappers instructed field officers and interested sportsmen on the finer points of fox trapping. That winter, game protectors destroyed 941 red foxes and 671 grays. In addition, bounty was paid on more than 10,000 gray foxes. The following year, when the bounty was expanded to include reds, people brought in 19,144 grays and 26,480 reds. Bounties would be used to encourage hunters and trappers to kill foxes for another 20 years.

The commission believed reducing fox numbers would ensure there was plenty of small game around when the state's soldiers returned



An explosion in fox populations prompted the commission to increase trapping pressure through bounties. Pelts submitted for bounty were brought to the agency's South Office Building headquarters in Harrisburg.

home. Antlerless deer hunts were also confined to counties where crop damage was extensive during the war. The commission didn't schedule any statewide antlerless hunts during World War II.

Wildlife managers throughout the country expected increased pressure on wild resources when the war was over. As early as 1943, Ira Gabrielson cautioned state wildlife officials that returning soldiers would be very interested in spending more time in the field. Albert M. Day, another U.S. Fish & Wildlife Service (USFWS) official, continued to caution managers as late as 1946. He told states that after the First World War, the number of hunters increased 30 percent. He predicted the increase might be as much as 50 percent following World War II.

From 1943 to 1947, the number of hunting licenses sold in America did increase by 50 percent. Federal duck stamp sales showed similar growth during the period. In Pennsylvania, hunting licenses increased by almost 40 percent between 1943 and 1946. The state's share of federal Pittman-Robertson funds increased by 150 percent from 1946 to 1947. It tripled over the next year.

Day attributed the rising popularity of hunting to what the soldiers were exposed to during their service. "Millions of our boys have now learned how to use firearms," he said. "They have learned how to live in the out-of-doors."

While the soldiers returning to Pennsylvania found good hunting, that didn't extend to waterfowl. Increased hunting pressure, liberal bag limits, lengthy seasons and loss of habitat caused by human development of wetlands continued to suppress duck populations across the United States. In 1946, the USFWS cut the season to 45 days from 80; dropped the possession limit to seven birds from 10; ended shooting hours at one-half hour before sunset; and closed goose hunting along the Mississippi River.

In response to the waterfowl decline, the Game Commission began placing wood duck nesting boxes in wetlands. It also conducted more waterfowl research and investigated the possibility of propagating ducks for release. The agency continued to plant beneficial aquatic plants on suitable game lands and refuges. In addition, the commissioners gave their support to a proposal to increase the price of the federal duck stamp to \$2.

In July 1950, the Game Commission approved a plan to purchase and then release six-week-old black and mallard ducks on isolated ponds and lakes throughout the state. The procedure was being used in New York and Canada, with reportedly excellent results. The commissioners also approved a Westmoreland County hunting club's proposal to cross male black ducks with domesticated gray mallards. The agency agreed to provide the Rolling Rock Club near Ligonier with 25 to 100 male black ducks taken from Pymatuning in exchange for a number of the resulting hybrid ducklings and other considerations.

The Game Commission also took steps to intensify its waterfowl management efforts in 1950 when it appointed a full-time waterfowl coordinator. The manager's job was to select, develop and improve suitable lands throughout the state to attract waterfowl and increase populations.

Waterfowl recovery was a national priority, but the country first had to address its water pollution problems. America's growing population was producing increasingly large amounts of sewage, and factories were pumping liquid wastes into waterways. Pesticides, including DDT, were being sprayed on swamps to kill mosquitoes and on agricultural fields to rid them of destructive insects. Acid mine drainage flowed from abandoned and active deep mines, and with each heavy rain, coal silt washed from slag banks into streams.

"Pollution of our streams — always bad — became worse during the war," Albert Day reported in 1947. "New industrial plants sprang up overnight, and the disposal of their wastes was given little consideration. Plants using new manufacturing processes dumped new types of waste into the streams, and time did not permit adequate study to devise safe disposal methods. War housing communities sprang up overnight, and the treatment of domestic sewage lagged because of shortages of critical materials. We slipped a long way in the fight to correct a pollution situation that was already growing worse instead of better."

Pennsylvania began taking significant steps to curb pollution when it passed the Pure Streams Act of 1937, which placed restrictions on

water pollution caused by untreated sewage and industrial discharges. In 1945, the law was strengthened with an amendment sponsored by Rep. Charles H. Brunner Jr. of Montgomery County. Known as the Brunner Bill, the amendment established stringent criteria for acid mine discharges.

Prior to passage of the Brunner Bill, *Pennsylvania Game News* published an editorial supporting the pollution legislation. Editor Leo Luttringer wrote: "If ever a piece of legislation for the benefit of the whole people merited enactment this one does. Pure streams insure good water for domestic and industrial uses, better health and more outdoor recreation. Polluted, unsanitary streams are the signposts of decay, death and desolation. If we continue to tolerate them by not supporting the bill in question we shall justly deserve the reward we shall ultimately reap."

The Game Commission's land management program continued to evolve during the 1940s. At the war's outset, the agency was managing more than one million acres of game lands, refuges and private lands. That responsibility was complicated by a lack of manpower and equipment. But sportsmen pitched in, and organized groups helped field personnel feed game in winter, cut browse, build brushpiles and perform other habitat development work.

The sale of merchantable timber on state game lands increased markedly during the war as the agency provided lumber for national defense. The Game Commission benefited not only from the monies it received but also from the habitat improvements the timbering brought. "Studies by employees, as well as observations by sportsmen, indicate that cuttings which have been made on game lands in the past have materially improved habitat for wildlife," Gordon reported in 1942.

The Game Commission worked to enhance habitat in other ways as well, planting trees, shrubs and vines, creating food plots, and constructing small dams. But agency officials wanted to expand the land management program. In March 1944, the commission invited state and federal conservation officials to a special land management conference in Harrisburg. Representatives from more than 25 conser-

vation and public agencies attended the symposium, and they discussed topics ranging from timber management and soil fertility improvements to the introduction of exotic plant species. All discussions centered around how best to integrate land management and wildlife management techniques to optimize habitat in Pennsylvania.

In the years immediately following the conference, the Game Commission implemented a variety of new land management techniques. The agency developed long-term management plans for game lands, and it bought bulldozers, tractors and other heavy equipment to do the work. The commission expanded the game lands sharecropping program, and it accelerated food plot development. Erosion control measures were included in all land-management projects, and the Cooperative Farm-Game Program became a statewide project.

The 1940s also brought a significant change in the agency's land management philosophy. The commission discontinued the refuge system on large forested tracts because the sanctuaries, primarily established for deer, were no longer necessary. Officials believed smaller refuges would suffice.

"Generally speaking," Gordon said at the 36th International Association of Game, Fish, and Conservation Commissioners convention, "in a country like ours in the eastern half of the United States, the very large restricted refuge is a thing of the past from the point of view of its value to wildlife in the area."

Perhaps the most significant program begun in the years just after World War II was the establishment of the Service Corps — forerunner of the Food & Cover Corps. Inaugurated at a June 1, 1947, meeting, the Service Corps was charged with maintenance and habitat work on lands managed by the commission. The original complement was 75 employees, which would double within two years.

The agency had been able to make many improvements to its game lands in the years leading up to the war, thanks to organizations such as the Civilian Conservation Corps and Works Progress Administration. But after those programs ended, conditions on game lands began to erode. The Service Corps went to work to reverse the trend. It routinely performed maintenance and helped implement many new land management programs such as building and placing wood duck nesting boxes. Corpsmen built roads and feeders, planted and cut trees,

and developed food plots. They also fought forest fires.

By mid-1948, the Game Commission needed a hunting license increase to stave off financial problems. The agency had pared its nonessential programs during the war, and it had also set up the reserve account. But inflation had taken its toll, and the commission's operating overhead was rising.

Gordon pointed out the agency was still operating on license fees established in the 1920s, and, he said: "The sportsmen today are demanding more game for restocking purposes, an augmented law enforcement program, further expansion of the Cooperative Farm-Game Program, a greatly accelerated food and cover development program, etc. On top of this it must be remembered that the Wartime Reserve will be spent by May 31, 1949."

Gordon said without a fee increase, the agency would have to curtail its operations by 25 to 35 percent. Within a year of Gordon's plea for help, Governor James H. Duff signed into law a fee increase —raising the cost of a resident license to \$3.15 from \$2. There was, however, a stipulation that \$1.25 of the revenue from each license had to be used to improve food and cover conditions for wildlife; purchase and stock or trap and transfer game; feed wildlife in winter; and protect property enrolled in the Cooperative Farm-Game Program.

The agency embarked on expanded research programs on the impacts of predators and on wildlife food and cover requirements. Most of the studies focused on white-tailed deer biology, ranging from habitat carrying capacities to the effects of timber practices to crop damage.

Crop damage continued to be a chronic headache for the agency. "The deer problem of Pennsylvania is a very real one — chronic in the natural ranges throughout the commonwealth and becoming increasingly acute in our agricultural sections," Leffler said in 1948. "The problem has been evident . . . but the rank and file of hunters can not or will not recognize its existence, let alone its extent or severity.

"An established browse line, winter die-offs, single births, abnormal dates of birth, poor racks, poorer deer — yes, all the signs of an abnormal herd are to be found in Pennsylvania's deer range, or what used to be our deer range, covering about 30 counties. For today these animals are to be found in all of our 67 counties, including those in

which the cities of Philadelphia and Pittsburgh are located.”

The solution to Pennsylvania’s continuing deer troubles, Leffler believed, was persistent pressure. “Our first and best management practice is the employment of the high-powered rifle,” he said.

“We are beyond the stage where sound game management calls for only harvesting a surplus of excess deer,” he said. “We are faced with not harvesting but controlling them with the same determination with which we attempt to control any undesirable species. For the good of our other game species, for the good of our forests, and for the good of the deer themselves this must be accomplished,” he said.

In 1949, Pennsylvania’s deer hunters, then estimated to number about 400,000, shot 130,723 deer — 46,602 of which were bucks. It was the third largest harvest ever recorded in the state, but farmers remained unimpressed. The following spring, they told sportsmen and Game Commission officials in a meeting at the Potter County courthouse in Coudersport that crop damage caused by deer was more than they could bear.

Within a matter of months, the Game Commission launched its most ambitious research on white-tailed deer. The effort involved the Wildlife Research Division, game protectors and other field personnel, and the Pennsylvania Cooperative Research unit. The study collected data on reproduction, age, weight, antler development, food conditions, food habits, deer damage and diseases. It was designed to provide a baseline understanding of the white-tailed deer, and information gained from the years of research that followed would be used to define and refine the deer management program.

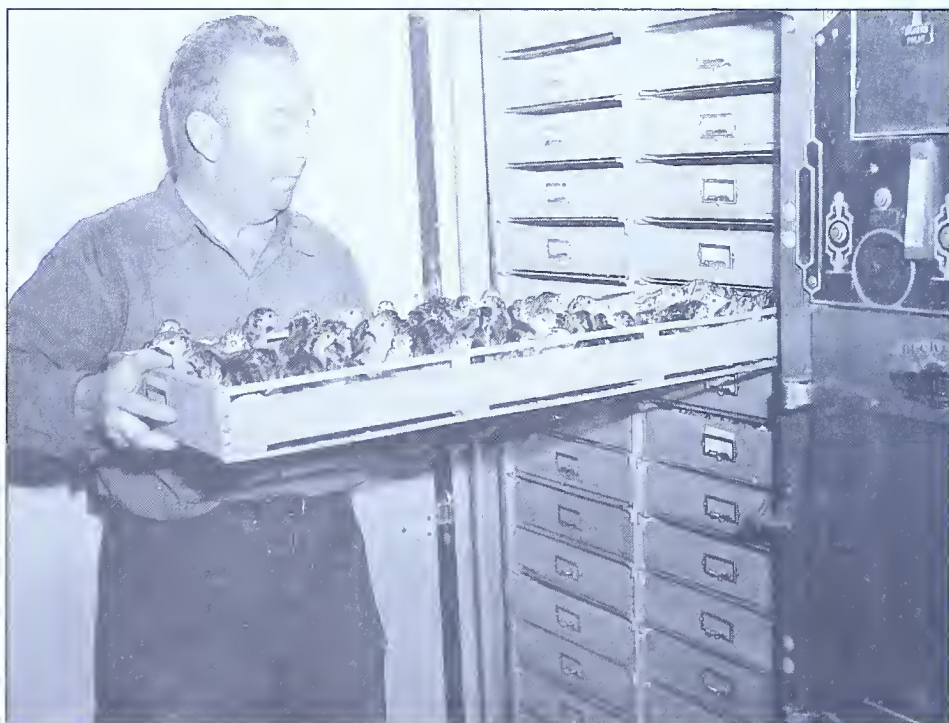
Pennsylvania’s wildlife conservation program was progressive in its time, and like any innovative program, mistakes were made along the way. As Leffler once wrote: “It is not very pleasant to talk about the mistakes we made. Nevertheless, when we glance at the credit side of the account we find that they helped us find the solution to many problems. They helped us see light where before we saw only darkness. They helped us to do our work better than we ever did it before.”

One of the mistakes to which Leffler referred was the Hungarian partridge introduction project. Although the program presented some

hope in its early stages, it failed despite the fact that thousands of live-trapped and pen-raised birds were stocked throughout the state and given closed-season protection. When it was discontinued, the agency traded some 2,000 unreleased birds to South Dakota for twice that many live-trapped ringnecks.

In 1944, the commissioners decided to move the 1,200-acre State Wild Turkey Farm in Juniata County to a 1,400-acre site along Loyalsock Creek in Lycoming County. The move, which occurred in the spring of 1945, was prompted by inadequate facilities, little room for expansion, poor soils and other problems. Two years later, the agency had to move the Jordan Game Farm in Lawrence County to a new site near Cambridge Springs in Crawford County. The Jordan Game Farm's buildings and equipment were in poor condition, and its soils were believed to be contaminated with diseases that handicapped production.

Groundwork for another important change on the game bird front occurred in early 1945. For some time, Commissioner Nicholas Biddle



Game bird propagation was one of the agency's largest enterprises. Wild turkeys and ring-necked pheasants were raised at places like the Loyalsock Game Farm. The birds were later released into the wild.

of Bethayres had been campaigning for a Pennsylvania mourning dove season — if not statewide, at least in the southeastern counties. At a Game Commission meeting in January, the commissioners agreed to give the matter further consideration. Four months later, they asked the federal government to permit Pennsylvania sportsmen to hunt doves during the November small game season.

The proposal was controversial. Mourning doves had been protected by state law since 1913; citizens wanted to ensure mourning doves didn't follow passenger pigeons into extinction. But the Game Commission did its homework before petitioning the federal agency for the season. It sought and received proclamations endorsing the season from the General Assembly and the Pennsylvania Federation of Sportsmen's Clubs. As a result, there was little in-state resistance to the proposal, and the USFWS eventually approved it. A one-month season was established and the daily bag limit was fixed at 10.

While the Game Commission may have learned some important lessons in exotic game bird introduction, those experiences didn't stop the agency from importing rabbits from the Midwest — a program the agency continued through the '40s except for a two-year hiatus during the war. Former Commissioner Adolph Muller of Norristown continually petitioned the Game Commission to halt the program, but the sitting commissioners ignored him. They usually sent Muller a thank-you letter for his "helpful advice."

Each year, thousands of Missouri cottontails were stocked after the hunting seasons; 160,000 were released in one three-year period. But limited research began to show the imported rabbits weren't adapting well to their new homes. A report cited long periods of confinement in traps and transportation cages, followed by releases into unfamiliar cover, as the cause.

"Even many of the food plants were new to them, and arriving in a weakened condition and being placed in a strange environment it is little wonder that a high percentage died within a few days," the report read.

It also soon became apparent the stockings weren't increasing annual harvests. In the four years following the war, annual rabbit harvests stayed around 1.75 million, even though annual stockings fluctuated from 39,000 to 77,000 animals over the same four years.

The Game Commission began to search for a new approach to augmenting rabbit numbers. A plan that emerged in 1949 called for the establishment of "rabbit farms" — one in each of the eight Game Commissioners' districts. The counties chosen for this initiative were Armstrong, Blair, Clarion, Dauphin, Jefferson, Lycoming, Montgomery and Susquehanna.

Under the rabbit farm program, the commission told farmers how to improve habitat for rabbits, and it furnished them with box traps. Farmers were paid \$1 for each rabbit they trapped and brought to the local game protector. All trapped rabbits were released in the township in which the farm was located. As of June 1950, more than 80 farms were participating in the program.

"Although the ideal set-up would be to have one in each township, providing suitable areas available to produce a good population of native rabbits, it is doubtful if that would be possible," read the 1949-50 PGC annual report. "Nevertheless, there are probably 1,000 townships throughout the state having farms that measure up to the rabbit farm standards. When a good supply of native cottontails is available through this plan, it will no longer be necessary to import western rabbits."

The Game Commission maintained its campaign against foxes and other predators, hoping it would boost small game populations. The agency offered handsome bounties of \$5 for each goshawk or great horned owl and \$4 per fox, and it encouraged hunters and even game protectors to kill predators.

The philosophy that fewer predators meant more small game still prevailed in some circles, but doubts about predator control programs grew. In April 1948, the Game Commission's Predator Control Committee adopted a resolution directing the agency to launch new studies to determine how predators affect wildlife populations. The committee wanted biologists to determine what level of predators could be "safely allowed" in the state without harming the supply of game animals.

Throughout the 1930s and '40s, the agency worked feverishly to reduce hunting accidents. Officials urged hunters to wear red, preached

safe gun handling and printed safety posters. While the campaign may have heightened awareness, it had little effect on the accident rate. Extended hunting seasons and expanded opportunities seemed to influence the rise in accidents, but the agency wasn't able to determine a significant cause. For instance, in 1931, 1938 and 1940, record numbers of deer and hunters were shot. Statewide either-sex or antlerless deer seasons were held all three of those years. While the data seemed to suggest accidents were more frequent when hunters were permitted to kill antlerless deer, most of the accidents were related to small game hunting.

The agency decided to focus its efforts on gun safety.

"The hunting accident problem and what we can do about it is one of the most perplexing ones with which our Commission has been confronted," Leffler said in 1941. "We have taken the problem quite seriously for a good many years and have devoted much time and effort to studying it. In this study we have left no stone unturned in order to get at the root of the matter, and we have reached the conclusion that it can only be met through the persistent application of a widespread educational program designed to make hunters more safety-conscious."

In the fall of 1941, the agency promoted safety through billboards, newspapers, magazines, radio, motion pictures and a summary issued with hunting licenses. The number of accidents declined, and by 1943 it was down to 218 — the second-lowest total in 18 years. But as soldiers returned home and more people started hunting, the rate renewed its climb. In 1950, there were 465 hunting accidents, roughly the same number that occurred 10 years before, and the agency was back where it started.

The rise in hunter numbers following the war had more of an impact than just increasing accidents. Hunter behavior deteriorated, and violations of game laws became more frequent.

"The general conduct of the hunters afield during the 1946 season was unsatisfactory, and in a number of regions there was appalling evidence of lawlessness and meat-hungry greediness," read the minutes of a commission meeting that year. "This was especially noticeable during the deer season, the percentage of illegal kills being much higher than normal. Total penalties collected for the fiscal year will

apparently be \$115,000 to \$120,000, as against a normal of \$50,000 to \$60,000. The previous high was \$96,000 collected in 1931."

The increase in violations was not just a Pennsylvania problem — it was widespread throughout North America. A 1947 survey conducted by attorney S. Dale Furst Jr. of the Pennsylvania Federation of Sportsmen's Clubs showed that, on average, wildlife-related prosecutions were up by more than 80 percent in the United States and Canada. Furst called it a "fish and game crime wave."

There were several schools of thought regarding the increase. Most people believed returning servicemen were responsible, that they had adopted a "school's out" attitude toward such considerations as wildlife laws. Others figured it was merely a function of increased numbers of sportsmen afield, or that the rising cost of living had caused it. A majority believed the situation was only temporary, but violations became more prevalent toward the end of the decade.

The increasing lawlessness in the hunting fields at times placed game protectors in dangerous situations. Late one night in January 1949, Game Protector A. Clinton Ganster stopped a car on a Perry County back road for suspicion of jacklighting. He found a spotlight beside the car, and upon searching the vehicle he discovered a rifle. Ganster arrested the car's three occupants, but while he was gathering information, one of the men attacked him.

Ganster was knocked to the ground and beaten. The officer tried unsuccessfully to grab his nightstick and, fearing for his life, drew his revolver and fired. His assailant took a couple steps and fell dead.

When word of the inci-



The Game Commission campaigned for improved hunter conduct in the face of a rising tide of crimes involving wildlife.

dent spread, public opinion quickly mounted against the game protector, saying he was too quick on the trigger. Governor Duff soon heard of the accusations and sent a letter of support to the commission.

"For my part, I have the highest regard for a game protector who will take the risk of his life, as this man, Ganster, did, apprehending violators at that time of night . . . the Commonwealth ought to come to the assistance of this game protector in every way and give him the aid and assistance that he is entitled to receive by reason of his strict adherence to his duty. . . ."

Ten days after the incident, a coroner's jury at the Perry County Courthouse in New Bloomfield exonerated Ganster, finding his actions justified. It was the last incident in which a game protector killed a violator.

As the decade came to a close, game protectors received new uniforms, along with a Colt .38 Special revolver, a shoulder holster and binoculars. Prior to that time, conservation officers were responsible for purchasing such equipment.

"Realizing that the field officers could do a much better job of law enforcement and public relations work when better outfitted, the Commission purchased new uniforms and other equipment. . . , " the 1949-50 annual report noted. "It is now one of the best equipped field organizations of its kind in existence, and as a result is rendering much better service."

A significant change in agency personnel occurred in 1948 when Seth Gordon, a 25-year veteran of the agency, departed. In his career he'd watched the commission evolve from a panel to a fully staffed and fully funded agency. Thomas Frye of Camp Hill took over in an October meeting at Fort Indiantown Gap. Frye, who had 35 years of administrative experience in state government, said he planned to do his best to improve Game Commission operations.

"My early efforts will be expended to a great extent in examining the present tools and developing more effective ways to use them," Frye said. "The challenge to improve wildlife conservation, restoration and management work in Pennsylvania is accepted. . . . I never accepted any position without firm determination to do a better job than had ever been done. This is no exception!"

Winds of other changes were blowing as the 1950s arrived. Some

commissioners were pushing for protection of female bears when they were accompanied by one or more cubs. Nicholas Biddle was lobbying for a special archery deer season. Sportsmen were asking the commissioners to initiate legislation that would permit the use of semi-automatic shotguns for small game. Challenges such as a raging rabies epidemic and changes to the deer management system also lay ahead for an agency that had come out of a world war in good shape.

8



“Our Deer Problem”

*A*S THE 1950S OPENED, Game Commission officials were convinced that the agency had to have better — if not complete — control of deer management in Pennsylvania. Politicians and sportsmen were interfering with scientific wildlife management decisions, and as a result deer were causing habitat problems in many areas of the state. Forest-dwelling species such as grouse and snowshoe hares were declining in some places because whitetails were destroying vegetation these and other woodland animals needed for food and cover.

The whitetail's impact on the forest and other forest animals became more severe as Pennsylvania's logged-off woodlands began to mature. The seedlings and saplings that followed logging activity had provided abundant browse and had supported large numbers of deer. But large stands of pole timber, with limbs too high for deer to reach, put the deer in direct competition with other forest species for available food supplies.

The deer herd had to be reduced in areas that could no longer support such high populations, and significant herd reduction could be accomplished only through shooting antlerless deer. But hunters still

believed it wasn't sporting to shoot antlerless deer, and they were sure that killing females would mean fewer bucks the following year. Many hunters and legislators thought Game Commission biologists had no idea how many deer there were in the state. They said they knew what was best for their deer, and they believed deer could be stockpiled in the woods like commodities in a warehouse. They believed "doe" hunting was wrong.

In 1950, the Game Commission started a program to educate hunters about deer and modern deer management. It was the beginning of an undertaking that would span many years and consume a great deal of time and money, but the agency realized that it would have to sell its ideas to the public in order to succeed.

The agency published a special edition of *Pennsylvania Game News* that dealt almost solely with deer management, and the issue — titled "Our Deer Problem" — became a cornerstone of the education effort. "Most of the dissension between the hunters and the Game Commission concerning the management of the deer herd arises because so many sportsmen lack a complete knowledge of the habits and physiological requirements of this animal," biologist Roger Latham wrote in the magazine's introduction.

Latham hoped the publication would eliminate many of the "perennial objections" that surrounded deer management. The special issue reached thousands of hunters and helped to open the tightly shut doors of sportsmen's clubs opposed to antlerless deer seasons. Hunters in some clubs wanted to know more about deer and what they could do to improve deer management. They began inviting Game Commission officials to their clubs in order to learn more.

But some hunters maintained their opposition to the Game Commission's herd management strategy. Latham tried to reach critics with a February 1953 *Game News* article titled "Too Many, Too Long!"

"Perhaps you deer hunters had better sit down and brace yourselves before you read this," Latham wrote. "Because here are some predictions about the future of deer hunting in Pennsylvania which will probably hit you right between the eyes. Here are facts to prove that

deer hunting in this state is about to enter a new era — an era of more hunting and less shooting — a period when the hunter will have to leave the highway to kill his deer.

"Remember the good old days when there was a whitetail behind every bush, and it was not unusual to start 50 or a 100 deer on one drive? Remember how every member of some upstate families would kill a deer — including Mom and Grandpop? Remember how a car with five hunters inside would have four or five deer tied on the outside? And remember how hunters scoffed at doe hunting because it was just like shooting cows?

"Those lush days are about gone except for a small area in the northcentral counties, and within five years this pocket will probably go as have the other great concentration areas of the state. This result is inevitable, no matter what we do. Closing the season entirely would only hasten the process. Shooting the deer down to rock bottom would help but little because now it is too late. There would be no recovery because there is no food for recovery. Much of it is desert — a forest desert with rotting bones of starved deer."

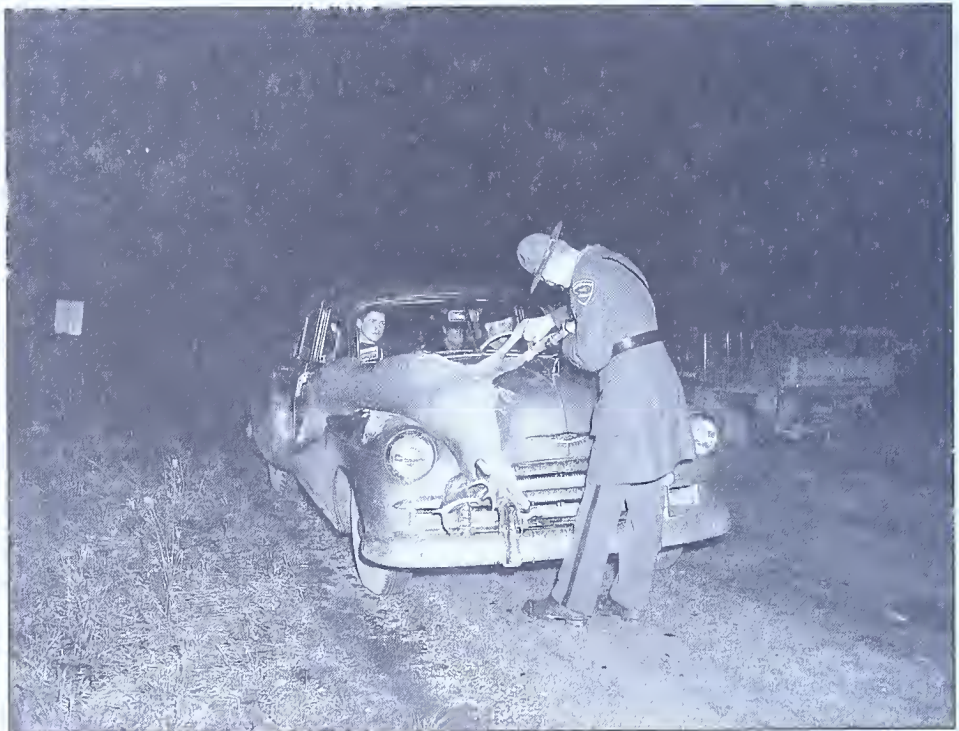
Perhaps Latham's description of environmental conditions overstated the case a bit, but not by much. As the forest matured past the point where deer could reach tree limbs to obtain browse, they fed more often on ground cover and stripped clean the forest floor. As a result, large winter die-offs of deer occurred in some areas. The deleterious effects of overbrowsing weren't limited to deer, either. In the absence of ground cover, other forest-dwelling species suffered. As commission biologist Glenn L. Bowers wrote later in the 1950s, keeping the deer herd within its carrying capacity would benefit the entire forest animal community.

"There is little doubt that had more deer been harvested in earlier years, our forests would be more productive of deer food today, and also would provide better living conditions for small game species such as snowshoe hares, cottontails and grouse," he reported. "We could have maintained a large deer herd in better condition — heavier animals with better racks and an increased rate of reproduction — if closely regulated harvests of antlerless deer had been accepted by sportsmen."

Areas that experienced high winter deer mortality were often those

where sportsmen had used county abrogation to close antlerless deer seasons. The procedure, similar but not identical to abrogation rights granted to citizens in 1913, was approved by the state legislature in 1949. It allowed hunters to close county antlerless deer seasons if 51 percent of that county's licensed hunters signed a petition opposing the hunt. In 1950, for instance, hunters had stopped antlerless hunting in 14 counties through abrogation. Fortunately for the Game Commission, the state legislature ended counties' abrogation rights in 1951. Better still, the General Assembly approved a Game Commission plan to manage deer through a county antlerless deer license allocation program — a crucial step for deer management.

Under the system, hunters had to purchase an antlerless deer license for a particular county for \$1.10 in order to hunt antlerless deer in that county. The money derived from the sale of antlerless licenses was earmarked, by law, solely for "cutting or otherwise removing overshadowing tree growth to produce underbrush sprouts and saplings for deer food and cover. . . ."



Hunters protested the large harvest of 1955, saying too many antlerless deer had been killed. The Commission responded by closing the antlerless season in 1956.

County antlerless allocations were usually conservative, and in the early days they were sometimes based on the intuition of the staff. The system allowed the agency to direct hunting pressure to where it was needed the most.

In 1953, two years after the allocation system was implemented, the Game Commission legalized the harvest of spike bucks, which had been protected by law since 1923.

"When the law was passed restricting buck shooting to those having two or more points to one antler, wildlife men believed that all yearling deer were spikes, and older deer added a point to each antler for each succeeding year," Latham reported. "For that reason, they believed that protecting younger deer would insure future trophy hunting. For a long time now, we have known that a young buck at 18 months may have as many as eight, 10 or even 12 points on its first set of antlers."

According to Latham, later research showed that small antlers, particularly spikes, were abnormal. A lack of high-quality food was the primary cause. Spikes and other small-antlered deer did not begin appearing in large numbers until the 1930s and '40s, a period when deer range was becoming heavily overbrowsed.

Deer harvests fluctuated through the '50s as antlerless seasons alternately opened and closed. In 1952, hunters reported killing 72,534 deer. Over the next three years, though, the harvest dropped. With no antlerless deer season in 1954, the harvest shrank to 40,915. Then antlerless season returned in 1955, and the take climbed to 86,155.

Hunters reacted to the large harvest of 1955 by saying too many antlerless deer had been killed. The Game Commission responded by closing antlerless season in 1956, both to placate the hunters and to make sure the biologists hadn't miscalculated. Researchers soon learned, though, that closing the 1956 antlerless season was not necessary, and it was the last time the agency would close it statewide.

The '50s also marked the beginning of Pennsylvania's archery deer season. The campaign for the special season was initially launched in the 1940s and was spearheaded by men such as Clayton Shank and Tom Forbes of the Pennsylvania State Archery Association, and by Commissioner Nicholas Biddle. Governor John S. Fine (who, interestingly, earned the distinction of being the only governor ever to halt

hunting when he closed the season for 10 days in November 1953 because of the danger of forest fires) signed a bill creating the season in 1951.

Bowhunters participating in the bucks-only season were required to buy a \$2 archery license in addition to the regular hunting license. In the first year, the agency sold 5,542 archery licenses, and 33 hunters reported killing bucks. A survey showed the majority of the archers were first-time bowhunters.

In 1952, 8,446 hunters purchased special archery licenses, but the harvest dropped to 24 bucks. After that, however, harvests began to climb. In 1957, the bucks-only archery season was expanded, and for the first time archers could shoot deer of either sex. The change brought a dramatic rise in archery deer harvests — from 224 bucks in 1956 to 1,358 deer (including 376 bucks) in 1957.

In the late '50s, biologists gained a better understanding of white-tails and herd dynamics through research on nutrition, age and sex ratios, and reproduction. Much of the data was gathered by field officers who examined deer that were killed on highways or shot for crop damage. The information led to the development of deer density limits for different habitat types, and by 1960 the Game Commission established its first comprehensive deer management policy.

The plan called for the agency to maintain a maximum breeding population of deer consistent with the range's carrying capacity. Hunters would remove the surplus. The policy's primary objective was "to assure a carryover of a maximum breeding stock in keeping with existing food supplies and provide maximum hunting opportunities to the maximum number of hunters."

Deer weren't the only forest animals on the minds of hunters and resource personnel. The wild turkey, which up through the late 1930s had been restricted primarily to the mountains of southcentral counties, began to expand its range — from two million to 13 million acres in about 15 years. Most of the expansion took place in the mountains, and no one is quite sure why the birds suddenly began to move into new territories.

Except for their stronghold in the southcentral, wild turkeys had been wiped out in the state by excessive hunting and habitat degradation. The commission tried to replace populations in some areas by

releasing birds it had raised, but the efforts failed. The habitat seemed unsuitable to restart populations, and game farm birds didn't fare too well in the wild.

But the state's forests were beginning to mature, and as turkeys moved to the fringes of their established range, the agency gave them closed-season protection in some counties. By the early '50s, large turkey harvests were occurring in Cameron, Clearfield, Elk and McKean counties, areas where turkeys couldn't even be found 15 years earlier.

In 1954, the Game Commission, convinced wild turkeys no longer needed closed-season protection anywhere in Pennsylvania, scheduled the first statewide turkey season in 25 years. Where wild turkey populations didn't exist, they were stocked. Turkey seasons remained open to hunters statewide until 1959, when some counties were again closed. The following year, the agency set up staggered seasons wherein counties with large turkey populations got a four-week season while other parts of the state were limited to two weeks.

At the beginning of the 1950s, the commission also attempted to restore, or in some cases introduce, a number of small game species. The agency tried once again, and failed once again, to establish populations of Hungarian partridges and sharp-tailed grouse. But other exotics were faring much better. Under the Day-Old Pheasant program, sportsmen were helping the agency rear more than 200,000 ring-necked pheasants each year.

Some hunters tried to introduce their own game, namely San Juan rabbits — possibly as many as 7,000 of them. Farmers were the first to condemn the brown San Juan rabbits, which weigh about five pounds. The San Juans dug extensive burrow systems, which could cover as much as a quarter of an acre and go to a depth of nine feet, according to Latham. The burrows presented a serious threat to crops. The big exotic rabbits also competed with cottontails for food, and well-informed sportsmen soon opposed the introductions. The animals were quickly labeled as destructive pests, and their importation into Pennsylvania was banned.

The commission also focused stocking efforts on waterfowl, specifi-

cally ducks. Concerned over depressed waterfowl populations, in 1951 the agency began rearing ducks on a farm located on Crawford County's State Game Lands (SGL) 213; the facility would be named the State Wild Waterfowl Farm. During its first year of operation, about 7,000 mallards and mallard/black duck hybrids were raised in an attempt to increase the state's nesting duck population. In late spring, when the ducks were about five weeks old and unable to fly, they were fitted with metal leg bands and released throughout the state on beaver ponds, marshes and other relatively remote wetland areas. It was hoped that since the ducks couldn't fly for another three weeks, they would come to regard the release sites as home and instinctively return the following spring to nest.

The Game Commission raised and released more than 60,000 ducks through the decade. But despite stocking efforts, waterfowl declined throughout Pennsylvania and the rest of the country. Habitat was disappearing as wetlands were drained to curb mosquito problems and filled to expand farming or human development.

"Unless we are successful in maintaining the basic needs of waterfowl, it will not be too many years before the annual argument about opening days, length of season, bag limits and other details of regulation will be of purely academic interest," Albert Day, U.S. Fish & Wildlife Service (USFWS) director, told wildlife managers attending the 1952 International Association of Game, Fish and Conservation Commissioners convention.



In addition to releasing ducks raised on its propagation facilities, the commission also began building and installing thousands of wood duck nesting boxes.

Waterfowl management changed to a flyway or migration route system, and nationwide seasons and bag limits were scrapped. USFWS also banned electronic waterfowl callers.

Back in Pennsylvania, the Game Commission worked on several programs to increase waterfowl populations. The wood duck nesting box program, which had yielded good results during its 1947 experimental run, became a boon to the small, colorful ducks. Wood ducks typically nest in natural tree cavities, which are often in short supply. The agency built and placed afield thousands of nesting boxes, and sportsmen's clubs soon joined the venture. Wood ducks responded favorably, and in many areas as many as half the nesting boxes were used by woodies.

In 1954, the Game Commission launched its Small Marsh Program, an ambitious attempt to construct or restore wetlands on game lands located on or near waterfowl migration routes. The agency took steps to ensure every developed wetland provided sufficient waterfowl food and cover.

The agency had been constructing marshes on game lands since 1936 when Works Progress Administration workers built a 25-acre marsh pond on SGL 56 in Bucks County. In conjunction with the Small Marsh Program, in 1954 the Game Commission and the state Department of Highways began building a dam on Conneaut Marsh on SGL 213 in Crawford County — the same game lands on which the duck farm was built. The resulting impoundment provided nesting habitat for ducks and geese.

Four years later, the U.S. Migratory Bird Conservation Commission approved the establishment of the Erie National Wildlife Refuge, a 6,161-acre tract located east of Meadville. The Erie refuge and 550-acre Conneaut Marsh quickly began attracting nesting waterfowl; they also furnished optimum habitat for a variety of other wildlife.

Even though these initiatives helped waterfowl and other species that depended on wetlands, water pollution still posed a serious threat to the health of wild habitat.

"We have used water badly, without proper respect for its natural cycle, turning it from a friend to an enemy," Ross Leffler told the members of the 1953 Clean Streams Conference. "We have destroyed forests, leaving barren, denuded mountainsides from which rain water

and melting snow pour unchecked; we have overplowed and overgrazed our lands; we have dangerously increased soil erosion, allowing precious topsoil to be carried to the sea; muddying our streams, filling up our reservoirs, and increasing the damage from floods. And we have polluted many of our streams and rivers. These are serious wastes. If they continue unchecked, they will impoverish us and our children.”

To people of that era, pollution seemed an inevitable consequence of progress. But as the ranks of sportsmen and outdoor recreationists grew, so did concern over man’s treatment of the environment. Organized efforts led to tougher pollution controls. In 1956, Congress approved the Water Pollution Control Act. The act, much stronger than anything on the books, strengthened state pollution control agencies by supplying financial aid and research and technical assistance. It also provided money to states for grants to help communities clean up their sewage problems.

Wetlands and water pollution were but two aspects of land management on which the agency focused. An example of the priority that habitat management was beginning to receive can be found, of all places, in the rabbit trap-and-transfer program. While it was a huge public relations success with the state’s sportsmen, trap-and-transfer wasn’t the answer to boosting huntable rabbit populations. Better habitat was the key, as evidenced by a three-year study in western Pennsylvania. Food & Cover workers improved conditions on a 40-acre tract, and the result was a 300 percent increase in the rabbit population.

Bowers suggested in a 1954 report that it was time to switch gears in the agency’s cottontail management program — and, indeed, its overall wildlife management strategy. He pointed to low hunting season recoveries of rabbits that were tagged before they were relocated from urban and suburban areas where they’d been trapped. Bowers noted that observations of stocked versus unstocked locations showed “extremely heavy” losses of released rabbits. In other words, rabbit trap-and-transfer was a failure.

“Perhaps the initial requirement for more effective cottontail management, actually all game management, in Pennsylvania is education

million each year to restore and establish wildlife food and cover. The importance of habitat also prompted commissioners in 1958 to create the land management officer position for game protectors with certain qualifications. Land managers supervised Food & Cover crews and coordinated habitat improvement projects on game lands.

The federal government's Soil Bank program was also a big help in increasing the amount of good wildlife habitat in the state. Implemented in 1956, it encouraged farmers to leave some of their property uncultivated. The Soil Bank was divided into two programs, the Conservation Reserve and the Acreage Reserve. The Conservation Reserve was designed to reduce agricultural production by contracting with farmers to leave their lands idle for three-, five- and 10-year periods. The Acreage Reserve also contracted with farmers to retire their lands, but only for one-year periods. Swamps and marshes were later included in the program. Farmers received about \$10 per year for each acre they enrolled in the Soil Bank.

During the first year of the Soil Bank program, 37,663 Pennsylvania farmland acres were removed from active production. By 1960, the last year for enrollment, 366,158 acres were contracted in the program. These idle acres provided invaluable habitat for rabbits, pheasants, waterfowl, furbearers, woodcock and deer.

The 1950s also saw the Game Commission step up its management of nongame wildlife. In 1952, the agency closed the trapping season on river otters, whose numbers were declining.

The goshawk bounty was rescinded in 1951 to reduce the killing of beneficial hawks mistaken for goshawks. Two years later, the Game Commission decided to beef up its enforcement of the 1937 hawk law because too many protected hawks were being shot during fall migration. At the same time, however, the commissioners made it clear they weren't calling for new legislation to protect migrating hawks. They turned down a request from Hawk Mountain Sanctuary Association to establish a refuge to protect migrating hawks on SGL 110, a tract of land on the Schuylkill/Berks County line west of the association's property on Blue Mountain.

In 1957 the agency gave all hawks protection during September and

October in all or portions of 20 northeastern counties. But in a way it was no better than the 1937 law already on the books. The new law still allowed people to kill birds of prey "when caught in the act of destroying domestic livestock, poultry, game, other protected birds, their nests or young, or fish in private rearing ponds, or to prevent such killing immediately following such destruction." Such language made it easy to circumvent the law's intent, and even after the 1957 hawk law was on the books for three years, the commissioners emphasized that shooting a hawk should not cost a hunter his hunting privileges on the first offense.

Two other predator species received quite different attention in the early '50s. A rabies epidemic began in eastern Pennsylvania in 1951, and the red fox and the gray fox were the principal carriers of the disease. Prior to the outbreak, the state had about a half-dozen cases of rabid foxes each year. By the end of '51, though, 108 foxes, one skunk and one white-tailed deer tested positive for the disease, also known as hydrophobia.

Rabies wasn't new to the state — there were outbreaks in the '40s that involved 800 to 900 animals each year. But the affected animals were domestic ones, primarily dogs. Now the disease was striking both fox species; dogs were less of a factor because by this time many had been inoculated against rabies.

In the latter half of 1951, 18 people and dozens of farm animals were bitten by animals suspected to be rabid, and attacks by rabid foxes increased markedly in early 1952. The problem was particularly bad in Chester



Game protectors posted signs warning of a rabies outbreak that occurred in the early 1950s. The epidemic struck Chester County particularly hard, and rabies cases were reported there almost daily.

County, where incidents occurred almost daily.

A United Press International story appearing in West Chester's *Daily Local News* reported that Ruby Dixon, 32, of East Dallas was attacked by a fox in January. She later died while undergoing treatment for rabies.

"Mrs. Dixon tried to scare off the animal by shouting at it, but the fox ran toward her," the article read. "The woman stumbled and fell as she ran toward the house and the fox seized her left forefinger. It hung on until she managed to choke it to death with her free hand."

In 1952, Governor Fine ordered the Game Commission to smother the disease in the outbreak areas as quickly as possible. The agency assigned 175 field officers and other employees to hotspots throughout the state, mostly in the east. The men placed dead crows injected with strychnine throughout the affected locales, and they put out cracklings and ground meat laced with poison.

Pet owners were warned to keep their dogs and cats indoors, and some residents protested the operations out of concern for their pets. In April, the protests resulted in the arrests of Game Commission Executive Director Thomas Frye and game protectors Ed Flexer and Don Croft. They were charged in connection with the poisoned baits, but a judge later ruled that the men were operating within the law.

Officers posted warning signs establishing buffer zones inside which they were about to place poisoned baits. The tactic proved effective — largely, it's believed, because rabid animals have difficulty obtaining natural food and are quick to eat such baits. Although some cats and dogs did die as a result of the poisoning campaign, the rabies problem quickly abated. The following year, healthy foxes from surrounding, untreated areas moved in to fill the void left by the foxes that were poisoned.

The rabies epidemic and its handling illustrate well the varied tasks that game protectors and other field personnel were called on to perform. The field force's efficiency got a boost in 1954 when the commissioners approved the purchase of walkie-talkies to be used on an experimental basis in the northcentral. A little more than two years later, the agency decided to join a cooperative venture with the Council for Civil Defense to establish a statewide radio network. A lack of money and technology kept the idea on the drawing board until 1958,

when innovative radio technology from the Motorola Corporation and financing from the federal government allowed the project to move forward. The two-way radio network went into operation on June 6, 1960.

Among their duties, game protectors spent a lot of time promoting hunter safety—in the field, at sportsmen's clubs, on radio and television, and at events like county fairs. The push was necessary because in 1953 the number of hunting accidents topped 500 for the first time. Hunters were encouraged to wear red hats and coats: state agencies and sporting organizations proclaimed "red hat days" to promote hunter safety. But while the color red doubtless saved many hunters from becoming accident victims, Game Commission researchers soon began to wonder whether red was the best choice.

Roger Latham studied safety colors in the early '50s and came to the conclusion that daylight fluorescent colors worked better. Fluorescent orange and fluorescent red were more visible than ordinary red or orange, especially in dim light. But he and other researchers were ignored because red was such an accepted color. Mistake for game shootings continued.

Although fluorescent colors weren't being endorsed by the hunting fraternity during the '50s, hunter safety began to make significant progress. Even though the number of hunters climbed 20 percent over what it had been the decade before, fatal accidents were declining. The yearly average of fatalities for the 1950s was 23, compared to 29 in the 1940s. It was encouraging, but still not good enough in the commission's eyes.

"Laws to protect hunters from their own recklessness and that of others are not enough. All beginners, and many old-timers should be taught the rules of safe gun handling, what to wear for safety, and what to do and what not to do when in the field and while traveling with firearms," Frye said in 1952 at the North American Wildlife Conference. "All of these are educational obligations which, if successfully accomplished, will go far toward creating in the public a confidence that the conservation agency is interested in their welfare and sport."

By this time young hunters were already attending informal fire-

arms safety programs at sporting clubs and fairs. Safety flyers accompanied hunting licenses, and news releases stressing safety were sent to newspapers and radio and television stations.

Some sportsmen chose to tackle the hunting accident problem on their own initiative. In 1954, the Kane Fish & Game Club began a gun safety school. During the safety course, youngsters participated in four instruction sessions and then took a written test. Some classes contained more than 80 kids. In subsequent years, sportsmen adopted the National Rifle Association's (NRA) new hunter safety education program to teach young hunters throughout the state.

Many people believed Pennsylvania needed a gun safety law similar to the one passed in New York in 1949. It required all young hunters to take a gun safety course before qualifying for their first hunting license. The course, first given by game wardens, was soon taken over by volunteer NRA instructors.

Although the time for mandatory safety training had not yet come for Pennsylvania, the foundation for formal hunter safety training was laid in June 1958 when game protectors and staff officers gathered at the Ross Leffler School of Conservation (which the training school had been named in honor of the commissioner and former executive director). There, NRA representatives taught them the latest firearms safety instruction techniques, with the idea that the officers would, in turn, become firearms instructors.

"They will become teachers of teachers so that an expertly trained army of qualified instructors may expand across the Commonwealth," a *Pennsylvania Game News* editorial proclaimed.

Game Commission officers taught hundreds of hunters, people who formed the nucleus of what would become an army of volunteer safety instructors. The new instructors and the game protectors were able to reach thousands of new hunters almost immediately.

The accomplishments and activities of the Game Commission during the 1950s seem all the more remarkable considering the changes in leadership that occurred during the decade. Ross Leffler, who had been instrumental in establishing the game protector training school at Brockway and who had displayed a deep interest in advancing

conservation education and firearms safety, left the commission on January 1, 1957, the same day President Dwight D. Eisenhower appointed him to the post of Assistant Secretary of the Interior.

In his letter of resignation, Leffler wrote: "These years have been happy ones for me in doing the kind of work I enjoy and serving as a part of this organization which has made so many significant contributions in the important field of conservation. Fortunately for me, the experience I have gained has helped to make me better qualified for the task I have been asked to assume in Mr. Eisenhower's official family."

Dr. Logan J. Bennett, born in Festus, Missouri, succeeded Executive Director Frye when Frye retired on October 1, 1953. Bennett, who had previously served as leader of Penn State's Cooperative Wildlife Research Unit for 10 years, was working as chief of the USFWS's Research Branch when selected to fill Frye's post. Bennett did not serve long. On Sept. 12, 1957, while attending the International Association of Game, Fish and Conservation Commissioners' annual convention in Las Vegas, Bennett died of a heart attack.



The National Rifle Association administered hunter safety training to Game Commission field officers and other staff in 1958. Officers in turn trained hundreds of hunters to become volunteer safety instructors, who became the backbone of one of the most successful hunter training programs in the nation.

The Game Commission also lost one of its founding fathers with the death of John M. Phillips, who passed away on September 8, 1953, at the age of 92. Phillips was the “Grand Old Man of Conservation” who suggested creating little Yellowstone Parks throughout Pennsylvania for wildlife. Flags flew at half mast in Pittsburgh from the time Phillips died until he was laid to rest.

As the agency headed into the 1960s, it was poised to take wildlife management to the next level. The commission was about to inaugurate several new hunting seasons, and a mandatory hunter education course for first-time hunters seemed a sure thing. Predator bounties were about to be discontinued, and game law modifications would change the face of recreational hunting.

9



Science Takes the Reins

BY THE 1960S, THE LAND was being drenched with pesticides and other pollutants. Littering and widespread trash dumping were tarnishing wild areas as the state's human population grew. For years, the harm to natural resources caused by progress was considered a trade-off, the cost of providing work, homes and food to the commonwealth's 11 million people. But the conservation movement, which was experiencing growth of its own, questioned whether pollution necessarily had to be accepted as a byproduct of man's existence.

In 1959, Dr. George J. Wallace, a scientist at Michigan State University, summed up the growing pesticide problem in a speech at the International Association of Game, Fish and Conservation Commissioners conference. "The current widespread and ever-expanding pesticide program poses the greatest threat that animal life in North America has ever faced — worse than deforestation, worse than market hunting and illegal shooting, worse than drainage, drought, or oil pollution, and possibly worse than all of these decimating factors combined."

The public at large was also becoming aware of some of the threats

that wildlife experts had begun to worry about in the 1950s, namely the dangers posed by pesticides such as DDT. Researchers were collecting evidence that the family of pesticides containing chlorinated hydrocarbons was killing or severely affecting the life cycles of wildlife. At the 1958 North American Wildlife Convention, John L. George, a U.S. Fish & Wildlife Service (USFWS) researcher, noted that more than 200 basic forms of chemical pesticides were on the market under some 6,000 brand names.

Production of chlorinated hydrocarbons had increased sevenfold from 1942 to 1958. DDT, for instance, was used by farmers to limit insect crop damage, by foresters to kill gypsy moths, and by health officials to kill mosquitoes. Chlorinated hydrocarbons such as DDT don't break down or dilute with time. They accumulate in soils and water, and are subsequently absorbed by small creatures such as invertebrates and fish. DDT-type pesticides often work their way up the food chain, where they affect higher animals; birds are particularly susceptible. Studies revealed the chemicals were causing eagles, ospreys and peregrine falcons to lay eggs with shells so brittle they broke under the mother's weight. Moreover, pesticides seemed to inhibit the reproductive cycles of adult birds.

The public of the 1960s wondered if it, too, might be affected, and people's fears were heightened by the 1962 publication of Rachel Carson's *Silent Spring*. Carson, a Springdale, Pennsylvania, native, spent four years documenting the effects that pesticides were having on wildlife and people.

"[Pesticides] have entered and lodged in the bodies of fish, birds, reptiles and domestic and wild animals so universally that scientists carrying on animal experiments find it almost impossible to locate subjects free of such contamination," Carson wrote. "They have been found in fish in remote mountain lakes, in earthworms burrowing in the soil, in the eggs of birds — and in man himself."

Carson's book became a best-seller and was quickly challenged by the chemical and agricultural industries. But natural resource managers applauded *Silent Spring* for its eloquence and simplicity. The book made household words out of pesticides such as DDT, chlordane and endrin.

The book generated public reaction and, in time, governmental

action. The Game Commission joined the crusade to restrict pesticide use in 1962. Executive Director Merton J. Golden, a Lackawanna County native who'd signed on as a deputy game protector in 1929 and who became executive director in 1957 following the death of Dr. Logan J. Bennett, called for controls on pesticides. "Many of the insecticides in common agricultural use are known to have serious deleterious effects on game species," Golden said at a conservation task force meeting.

In 1963, the Game Commission began participating in an inter-agency pesticide study. Five years later, the commissioners adopted a policy discouraging the use of highly toxic pesticides and encouraging the development and use of short-lived, biodegradable pesticides. The policy, while recognizing that alternatives might be more expensive and less convenient, also recommended the use of biological controls — introducing natural enemies to combat harmful insects.



Don Shiner

Pesticides and other pollutants were responsible for the disappearances and die-offs of many species. Birds were particularly vulnerable to pollution; this duck was found floating in a polluted pool along the North Branch of the Susquehanna River in Luzerne County.

The decline of bald eagles in Pennsylvania, which was connected to pesticide use, may not have been overly noticeable at first because the species was considered a rare and irregular visitor to most of the state. The few that did nest in the state displayed an affinity for the Lake Erie region — particularly Pymatuning Reservoir — and a stretch of the Susquehanna River bordering Lancaster County. By 1960, the last known eagle nest in eastern Pennsylvania, located on Mount Johnson Island on the Susquehanna River, had been deserted.

Even in the northwest, where they'd commonly nested, the bald eagle's existence became a fragile thing. In 1963, only four pairs nested in the region: two at Pymatuning, one at Conneaut Marsh and one west of Presque Isle. The tenuous nature of their foothold in the state was sharply illustrated when two of the four nests — those at Pymatuning and Presque Isle — failed to produce eggs. The female at Conneaut Marsh did lay eggs, but the nesting tree blew down in a storm.

In 1962 and 1963, the National Audubon Society, in conjunction with federal and state wildlife agencies, conducted a continent-wide bald eagle survey. Results from the second year of the survey indicated there were about 500 breeding bald eagle pairs in the Lower 48 states.

In 1966, the USFWS established sizeable buffer zones around national wildlife refuge eagle nesting sites to reduce stress on the birds. Technicians braced nesting trees that were in danger of falling, and communicators stepped up their efforts to inform people of the eagle's plight. While the efforts didn't revive eagle populations, they did help some of the remaining birds to survive.

Bald eagles weren't the only birds suffering from the effects of pesticides. Peregrine falcons, like eagles, were never common in 20th century Pennsylvania. At one point, the state's breeding population numbered 40 to 50 pairs, but by the 1960s the falcons were gone. The last known successful peregrine nest had been located on a cliff near Wysox in 1957, although pairs were spotted at historic cliffside aeries for a few years after that. By the mid-'60s, however, the peregrine falcon had vanished — not only from Pennsylvania but from the whole country east of the Mississippi River.

The disappearance of an entire species from such a large area prompted USFWS to establish an endangered species research station

in Patuxent, Maryland, in 1965. A year later, Congress enacted the Endangered Species Preservation Act, which required the Secretary of the Department of Interior to develop and publish a list of rare and endangered native animals, and to conduct research on those species and buy habitat for them. In 1969, Congress passed the Endangered Species Conservation Act, which increased protection for threatened species and extended protection to a wider variety of wildlife.

In 1970, the Game Commission responded to one of the state's endangered species concerns by closing the season on bobcats, which were scarce except for a small stronghold in the northcentral. Biologists hoped the move would, in time, allow the population to grow and expand its range.

Bobcats were one of the first predators to be removed from the bounty rolls, largely due to a research project conducted by biologist Richard Gerstell back in 1937. He concluded that the agency should protect the bobcat, but it took 33 years and the termination of the bounty system to accomplish that goal.

The bounty system had long been a favorite of hunters, farmers, commissioners and some agency staff, and Pennsylvania was one of the last states in the country to let go. Gerstell was the first biologist to attack the program as inefficient and wasteful. In 1960, Roger Latham — then no longer a Game Commission biologist — challenged the use of bounty systems throughout the country in a National Wildlife Federation brochure titled “Bounties Are Bunk.” Only 29 states were still paying predator bounties, he said, and the science of wildlife management had progressed to the point that officials should know better than to continue such programs.

“The science of wildlife management has come of age and barber-shop biology is rapidly being replaced by true wildlife biology,” Latham reported. He criticized the bounty system as “notoriously inefficient,” and he said the money spent on bounties would be much better spent on improving habitat.

A 1963 Game Commission survey showed that of the 29 states still providing bounties, less than a dozen were using wildlife funds to pay for them. None of the states responding to the agency's inquiry

considered bounties a “game management technique.”

In October 1965, after much in-house campaigning by biologists and the appointment of York native Glenn L. Bowers as Game Commission executive director, the great horned owl bounty was dropped. Two months later, the commissioners terminated bounties for red and gray foxes. Hunters quickly criticized the agency’s decision, and in letters, editorials and speeches they labeled the new executive director “Bounty Bowers” and “Foxy Bowers.”

In response to the outcry, biologist Harvey Roberts prepared a report showing many predator populations have an annual mortality rate of about 70 percent. By killing predators, he said, hunters were in effect benefiting the very animals they wanted out of the picture. “In actuality, the remaining foxes would merely find less competition, live high on the hog and exact the same toll on the cottontail population,” Roberts wrote.

Another program the commission axed, the termination of which was also opposed by the public, was supplemental winter feeding of wildlife. The agency wanted to convince people that the time-honored practice it had started in 1905 had outlived its usefulness. When it began winter feeding, the Game Commission was trying to protect its investment in the wildlife it had raised or purchased and then stocked.

The agency had made it a point to encourage sporting clubs and residents to help feed game in winter. In time, the practice became ingrained in Pennsylvania culture, perhaps because it gave the public something tangible to do to help wildlife. As sporting clubs, businesses and individuals joined in winter feeding efforts, the activity seemed to transcend its original purpose: It became almost a form of recreation. But biologists began pointing to the hazards that feeding posed to wildlife. For one, it made the animals dependent on an unnatural food source that was not altogether dependable. People would sometimes feed for a while and then stop. Feeding also concentrated large numbers of animals in one place, increasing the chances of spreading disease through a population while at the same time making it easier for predators to have an impact.

From a practical standpoint, feeding was expensive and time-consuming, and in the end it benefited only a tiny percentage of wildlife. The agency cut back its winter feeding program in October

1960, establishing a policy that permitted only the feeding of corn to turkeys, pheasants, quail and squirrels when “feeding is necessary for survival.” It also mandated the use of deer-proof feeders for turkeys, and required providing browse, not corn, to deer.

But when the winter of 1960-61 struck, heavy snows and bitterly cold temperatures brought an avalanche of public criticism down on the new policy. The agency was essentially forced to launch an emergency feeding campaign. Workers plowed open more than 2,700 miles of roads, hauled and distributed about 126,000 bushels of corn, and cut 2,470 acres of browse. The project cost hundreds of thousands of dollars and in the end benefited only a fraction of the state’s wildlife, proving what many had said all along. It was the agency’s last all-out feeding program.

The concern Pennsylvanians had for their wildlife grew from an appreciation of the natural world. “This conservation awareness did not develop accidentally,” said Wildlife Management Institute president Ira Gabrielson in 1969. “It has matured slowly, and it has been broadened progressively in the past decade by the enactment of fundamental conservation programs.”

The awareness to which Gabrielson referred translated into political action during the 1960s. Pennsylvania voters overwhelmingly supported ballot referendums for Project 70 in 1963 and Project 500 in 1967. Project 70 established a \$70 million bond issue to buy parks and other recreational areas; its intent was to put a state park and man-made lake within 25 miles of every Pennsylvanian. Project 500, a \$500 million bond issue, paid for development of recreational areas (especially those purchased with Project 70 monies), reclamation of strip mines and deep mines, and construction of sewage treatment plants.

The Game Commission received \$5 million from Project 70 to buy important wildlife areas threatened by human development. The agency purchased 16 tracts in 15 counties, spending slightly more than \$4.9 million for 18,851 acres.

The most notable of the Game Commission’s Project 70 acquisitions was the Middle Creek Waterfowl Project (later named Middle Creek Wildlife Management Area), a 2,900-acre tract on the border

of Lancaster and Lebanon counties. By negotiating with landowners, and later using eminent domain to clear impasses with people unwilling to sell their properties, the Game Commission bought the 82 tracts that originally comprised Middle Creek.

The acquisition of Pennsylvania's "Pymatuning East," which began in late 1965 and concluded in 1972, was punctuated with disorder and violence. Four barns and a house were burned, apparently by arsonists who sympathized with the landowners. Surveyors were harassed and had their car tires flattened.

Opposition to Middle Creek arose for several reasons. Word of the plan leaked to the public before the Game Commission was ready to unveil it, and as a result most affected landowners read about Middle Creek in newspapers rather than hearing it from agency representatives. And, not surprisingly, many of the farmers involved weren't ready to give up land their families had worked for generations, and



The Game Commission used money from ballot referendums such as Project 70 in 1963 and Project 500 in 1967 to buy important wildlife areas or develop recreational spots. One such purchase was Middle Creek Wildlife Management Area.

other property owners didn't want to surrender their homesteads. Public sentiment sided with the landowners, and Middle Creek endured some rough sledding in the early phases. But time and generous settlements calmed the situation, and as construction began, people soon realized the recreational benefits that Middle Creek would offer.

The Game Commission received \$21.8 million in Project 500 money to enhance habitat, and to build roads, parking lots, shooting ranges, bridges, impoundments and other utilities on state game lands. The agency also used some of the funds to pay for construction of environmentally controlled pheasant brooder houses, which led to large increases in game farm production. Two of the agency's more familiar Project 500 undertakings include the Shohola Wildlife Management Area in Pike County and State Game Lands (SGL) 176's Scotia Range in Centre County. The commission spent more than \$20 million of its Project 500 allocation.

Pennsylvania benefited from Project 500 in other ways, too. The bond provided \$125 million for state recreation projects (which included the Game Commission's share); \$75 million for municipal park development; \$200 million for Operation Scarlift, a statewide abandoned mine reclamation program; and \$100 million to upgrade and build sewage treatment facilities that helped clean up waterways.

Project 500 was an important complement to the Clean Streams Act of 1965, a law designed to repair streams ruined by acid mine drainage. Pennsylvania had more waterway miles polluted by acid mine drainage than any other state in the 1960s. It was a chronic problem that jeopardized residents, natural resources and the state's economic future. The Clean Streams Act closed loopholes in the 1937 Pure Streams Law that allowed mining companies to discharge acid mine water into streams, creeks and rivers. The new law also increased the fines for polluting waterways. The top of the water pollution fine structure jumped from \$500 to \$5,000, and per-day penalties increased five-fold from \$10 to \$50.

The same year the Clean Streams Act was signed into law, the Game Commission purchased its one millionth acre of state game lands. On March 16, 1965 — 45 years after it had bought SGL 25 in Elk County — the agency acquired SGL 253, a 665-acre tract in

Venango County, for \$30 per acre. The average cost per acre for the organization's first million acres came out to only \$5.65.

Acquiring a million acres of huntable land was a crowning achievement for the agency, and a landmark for habitat preservation. Game lands were located in nearly every county (only Delaware and Philadelphia counties didn't have them), and Governor William W. Scranton spoke of the achievement in an address at Franklin.

"In an effort without parallel, a hunting public through a state agency has bought and paid for a million acres of prime hunting land," the governor said. "This is indeed an amazing accomplishment. Located in 65 of our 67 counties, these tracts offer recreational opportunities that are not available anywhere else in the world — and at only the cost of a hunting license."

Although the foregoing land acquisition and management efforts were making an impact, wildlife habitat loss plagued the state as the demands of the human population grew. Wetlands were filled or drained for agriculture or development; farmers leveled windbreaks and fencerows; and housing and industrial parks replaced woodlots and fields.

In 1962, Game Commission biologists estimated the state had lost to development more than 850,000 farmland acres — much of it in the ring-necked pheasant's prime range — over the previous quarter-century. The trend continued through the 1960s, and biologists warned that development of farmland would eventually lead to drastic cuts in pheasant harvests. But ringneck hunting in the late '60s was better than it ever had been, and many hunters remained unconcerned.

Mounting wetland losses were also particularly disturbing to wildlife managers. The problem had become so prevalent that some wetland types were being considered by experts as "remnant" or "rare." Few species are as wholly dependent on wetlands as ducks and geese, and the combination of wetland loss and the deterioration and disappearance of farmland habitat motivated the commission to develop several waterfowl programs. The agency set a priority of acquiring and developing wetlands, and it concentrated on Crawford, Erie and Mercer counties, and on the river valleys of the Delaware and Susquehanna. The Game Commission erected thousands of waterfowl nesting structures and enhanced habitat through aquatic vegeta-

tion plantings, and dike and dam construction. The commission put out farm-raised ducks and geese in wetlands where they might establish wild populations or attract migrating waterfowl to these prime nesting areas.

In 1966, the Game Commission worked to establish a resident Canada goose population at Middle Creek Wildlife Management Area. Laborers built two pens that enclosed more than 80 acres, and the first year they placed inside 15 mating pairs of geese from Pymatuning. The following year, the commission bought geese from a Delaware propagator and put them in the other pen. The geese produced more young with each passing year, and early in 1969 the pen roofs were removed. The once-captive geese quickly set up nesting sites on almost every small dam and puddle on the management area. The pens were removed a year later. By 1970, a core population thrived at Middle Creek.

Also during this period, wildlife researchers asked sporting ammunition manufacturers to develop a nontoxic shot for waterfowl hunting. Some studies indicated that ducks and geese were dying of lead poisoning, which they got by picking up spent lead shot while feeding in shallow bodies of water. Estimates suggested the nation's waterfowl hunters annually deposited about 3,000 tons of lead into areas that ducks and geese frequented.

The idea of developing a nontoxic shot for waterfowl hunting first surfaced in the 1930s, but it didn't gather significant support in wildlife management circles until the early 1960s. Its champion, Illinois natural history biologist Frank C. Bellrose, conducted years of research and concluded that a soft iron shot would reduce poisoning problems. Hunters objected to the idea, claiming iron shot would scar barrels and be too expensive. For the time being, the nontoxic shot idea languished.

Even as farmland and wetland habitats deteriorated, forest conditions improved, providing better homes for more wildlife species. Many sections of the pole timber forest that dominated the state for years were beginning to mature into saw timber. In addition, reverting farmlands and intermittent timber cuttings created fields of shrubby

vegetation and stands of seedlings and saplings. The habitat diversity benefited grouse, deer, bears, and cavity nesting and canopy dwelling birds.

Perhaps the primary beneficiary of the changing forest was the wild turkey. The birds were returning to areas in which they hadn't been seen in decades, aided by the Commission's trap-and-transfer program and by improving range conditions. Although the turkey population was slipping in its decades-old stronghold in the southcentral part of the state, the birds had gained a solid footing in some northcentral counties.

The population decline in the southcentral is believed to have been caused by excessive hunting pressure. The Game Commission intensified stockings of game farm turkeys throughout the region to reverse the trend. But larger releases were unsuccessful, and in some cases they seemed to worsen the situation. It confirmed the belief held by many agency biologists that game farm turkeys couldn't adapt to the wild.

"It all boiled down to the increasingly apparent fact that it is virtually impossible to artificially propagate and pen-raise a game bird that can readily revert to the wild when released," biologist Gerry Wunz said in a report. "Care in selecting breeders with the wildest traits might help, but the necessity of raising the birds in captivity automatically dooms them to degrees of tameness. Few, if any, have a chance to become truly wild turkeys."

Wild turkey trap-and-transfer, although used as early as the 1920s by Game Commission personnel, really came into its own in the 1960s. Wunz began using a cannon net instead of large pens to trap birds, and in the cannon net's first year of operation it captured nearly as many turkeys as were taken in four years of pen trapping. From 1960 to 1970, about 650 turkeys were trapped in northcentral counties and released at sites across the state. During the first few years, most of the trapped birds went to southcentral counties such as Bedford, Franklin, Fulton, Juniata and Perry. Later in the decade, they were released in the Allegheny and Appalachian mountain chains.

During this period, Perry County became a proving grounds for the trap-and-transfer program and a nail in the coffin for the agency's turkey farm. As part of an ongoing study, the agency stocked only wild-trapped turkeys in the county. With time and more releases, the wild

birds began to take hold and multiply — evidence that trap-and-transfer was a more productive method of reestablishing and boosting populations than was stocking game farm birds.

The success in Perry County led to further experiments with releasing only live-trapped birds, and by 1966 the Game Commission had adopted a management plan calling for the systematic stocking of trapped wild turkeys in every county capable of sustaining turkey populations. Under the plan, the release of game farm turkeys was forbidden for at least one year prior to and after the scheduled release of wild-trapped stock. The plan also banned game farm turkey releases wherever wild populations had been established.

In addition to trap-and-transfer efforts, the commission broke the state into two zones for the fall turkey season as a way of limiting the harvest. The zones separated most northcentral counties, which had sizable turkey populations, from the rest of the state. Sportsmen in the northcentral zone could typically hunt fall turkeys for three or four weeks; outside that zone the season was only two weeks.



As it became increasingly evident that releasing farm-raised turkeys into the wild would not establish self-sustaining populations, the commission turned to trap-and-transfer of wild birds. The relocations eventually restored the wild turkey to suitable habitat across the state.

By 1967, turkeys inhabited roughly 50 percent of the state's forest land, but they were notably absent from the northeast. The commission often diverted large numbers of game farm turkeys to the region, and the stockings were welcomed by hunters. But the agency wanted to build a wild population in the northeast, and in Schuylkill County as well. The commission decided to focus on Carbon County. Biologists believed that if a healthy population was established there, in time it would expand into Schuylkill County and the Poconos — two areas where hunters resisted the idea of ending the release of game farm turkeys.

The project spanned several years, and during that time 130 wild-trapped turkeys were released in Carbon County. The plan worked just as the biologists thought it would, and within a number of years wild populations had been established.

In the mid-1960s, hunters began asking for a males-only spring turkey hunt. Biologists had no objections because they didn't think the hunt would hurt the flock; some even actively campaigned for it. Spring gobbler hunting was popular elsewhere, and agency officials visited other states to review and participate in spring seasons. They quickly became sold on the concept and subsequently arranged for a six-day experimental spring gobbler season, beginning May 6, 1968.

Executive Director Glenn Bowers announced the season the year before, reporting that because Pennsylvania had one of the largest turkey flocks in the nation, there would be no detrimental effects. "Since polygamous gobblers acquire harems of several hens, there are two or three times as many gobblers as are needed. Consequently, many gobblers may never have the opportunity to mate and are merely excess baggage, competing for food and range with the productive segment of the population."

The season opened on a Monday, and hunters who killed a turkey in the fall season could not participate. The first day saw a limited turnout. The last day, a Saturday, attracted the most hunters. Field officers estimated more than 1,600 gobblers were taken in the first spring season.

Although the Game Commission's wild turkey management program made substantial progress in the '60s, some of the biggest changes in wildlife management centered around the white-tailed

deer. As the decade opened, biologists worked diligently to develop a more reliable antlerless deer license allocation system and to learn more about whitetails. They implemented deer nutrition and carrying capacity studies, and they expanded other data collections and created voluntary deer check stations along major hunter travel routes.

The first station was set up in 1961 on Route 8 north of Franklin. There, hunters could bring in bucks they'd shot, and agency personnel recorded age, weight, antler development and physical condition of the deer. By the time the practice was discontinued in 1981, six check stations were in operation around the state.

Check stations improved the efficiency of the biologists, who no longer had to rove the state in search of deer to examine. For their part, many hunters were only too happy to stop at the check stations, even though they didn't have to. They wanted to learn more about their prize, help the agency with its research, or just show off their deer. The check stations, although successful, were but a part of the biologists' data collection activities. Teams of researchers examined deer in meat processing facilities, and game protectors collected jawbones and other samples from dead deer they found.



Deer check stations allowed biologists like Lincoln Lang (left) and Steve Liscinsky to examine animals at centralized locations. By examining thousands of deer each year, wildlife managers kept tabs on herd health.

“By annually examining thousands of deer, Game Commission personnel are able to maintain a constant check on the health of the herd and, indirectly, the condition of the range,” biologist Lincoln Lang reported in 1965. “A most apparent fact is that the best deer, from the standpoint of size and health, are found in places not necessarily considered deer country. On the other hand, many of the poorer quality deer are found in our Big Woods country where deer populations are usually high.”

The agency revamped its antlerless license allocation system based on what biologists had learned from the huge amounts of data they had gathered. Up until the late '50s and early '60s, biologists utilized a “trend index” to set county allocations. The trend index was based on past county buck harvests and previous hunter success rates in antlerless deer season, and it also took into account deer that were killed on the highway or shot for crop damage.

That changed in 1964 when biologists began allocating licenses based upon a “minimum deer population index” they had developed. Lang, one of the index’s creators, said it was a first. “Nobody at the time was calculating a deer herd,” he said.

The resulting system was a more precise management tool to control local populations. Based on the ages of deer that had been killed in a prior season, biologists could reconstruct how big the herd had been before that deer hunting season began. Then they applied a formula — derived from the thousands of deer they had examined — that included reproduction rates, sex ratios, health and hunter harvest rates for each county.

The process accounted for differences between counties; some had better deer reproduction, habitat and harvest success than others. The system permitted the agency to reduce deer populations in counties with poor range, which would result in healthier animals as numbers came into line with available food supplies. Conversely, allocations in counties with better range were set to increase the herd, and thereby provide more recreation.

In 1964, the commission created a Special Regulations Area in parts of counties bordering Philadelphia to reduce the mushrooming deer herd there. The regulations prohibited rifles, and hunters had to use shotguns loaded with buckshot, but they could hunt antlerless deer for

more days than the rest of the state.

The agency realized that all these innovations, enhancements and changes to deer management were going to require a little salesmanship. The commission launched an aggressive public education campaign, aimed not only at hunters but at the rest of the public as well. The white-tailed deer, which had been named state mammal in 1959, had expanded to the point that more people than ever were familiar with the species. The public's increased contact with deer — whether the experiences were positive or negative — had generated interest in the animal's natural history and behavior.

The commission developed a 25-minute film titled "The White-Tailed Deer." Biologists frequently wrote articles for *Pennsylvania Game News*, explaining topics such as the antlerless allocation system, deer nutrition and habitat carrying capacities. Game protectors and biologists also spread the agency's message in the field and at the check stations.

One of the Game Commission's most effective vehicles for educating the public was a series of public meetings. The program, jointly sponsored by the agency and Pennsylvania State University's Cooperative Extension Service, reached thousands of residents. Each meeting opened with a brief presentation on deer and was followed by a question-and-answer period. Lively comments and occasional shouting often punctuated the discussions.

"The key to a successful deer management program in a state with the variety of land uses and range conditions that we have in Pennsylvania is public acceptance," biologist Harvey Roberts said. "Public acceptance, in turn, is predicated on a clear understanding of the deer problem and the mechanics of deer management."

Public acceptance did not come easily. As antlerless allocations climbed each year, many people, including legislators and even some Game Commission officials, questioned them. The agency stood by its program, and with the help of the public education campaign, the numbers began to speak for themselves as buck harvests increased. In 1963 and '64, hunters came close to breaking the state record buck harvest. The following year they did: Hunters in 1965 shot 65,150

bucks, burying the 1957 record of 49,254. Two years later they killed an all-time high 78,268 bucks — a mark that stood for many years.

At the same time, sportsmen were also shooting large numbers of antlerless deer. To ensure sufficient antlerless harvests, the Game Commission set two- and three-day seasons; if bad weather limited the kill, the season was extended an additional day. By 1968 the statewide antlerless allocation had risen to 480,000, and that allocation resulted in a harvest of about 80,000 deer.

Few species owed as much to the application of modern wildlife research as did the black bear. Up until the latter part of the decade, bear season — and, by extension, bear management — was simply a week-long affair in which anyone who had a hunting license could go bear hunting. Annual harvests averaged about 370 bears. But in 1966 and '67, the kill suddenly skyrocketed to 605 and 568 respectively, high tallies considering the 1925 law that prohibited the shooting of cubs was still in place. Hunters and wildlife managers alike wondered whether the two large kills had cut into the breeding population.

The Game Commission and Pennsylvania Cooperative Wildlife Research Unit implemented a study in June 1967 to identify the sex and age makeup of the bear population, as well as bear movement patterns and habitat requirements. Cameron County's Wykoff Run served as the primary study area. The following year, many people's worst fears seemed confirmed when hunters shot only 218 bears during the six-day season. The kill had dropped substantially in counties such as Clearfield, Clinton, Elk, Lycoming and Potter that traditionally had high harvests. The state never again held a six-day bear season, although managers were unsure what to do about bears and bear hunting.

"Our present position in bear management might be likened to a stock owner who didn't know how many cattle he had in a large pasture nor the age or sex of the animals," Dr. James Lindzey, Cooperative Wildlife Research Unit leader, reported prior to the 1969 bear season. "It would be difficult for him to determine how many animals could be sold off without interfering with production from the herd."

Lindzey and his biologists suspected the state's bear reserve was

shrinking because the number of bear hunters was increasing. They noted bear harvests in Pennsylvania had gradually increased since World War II's end. "We believe it is the result of a combination of heavier hunting pressure, favorable weather conditions and restricted food availability," Lindzey and fellow researcher Gary C. Wakefield reported in a 1969 issue of *Game News*.

During a conservative two-day season in 1969, hunters killed 295 bruins. The harvest sparked more controversy. Many people thought the take was indicative of a shrinking population; the commission maintained that the bear population was in no danger of declining. In reality, no one really knew how many bears the state had. Given the uncertainties, the agency closed the bear season in 1970, the first such closure since 1934. It gave the agency time to perform more research and develop a better bear management program.

As the agency worked to modify and refine its wildlife management programs, no less effort was spent on improving its law enforcement capabilities. The incidence of wildlife crimes was still on the rise, for a variety of reasons. Markets for illegal wildlife were growing, but at the same time so was a disrespect for wildlife law. And those who broke the law got better at it.

Tom Bell, Game Commission Law Enforcement Division chief, saw the change during his tenure. "A difficult puzzle exists," Bell wrote in 1964. "As more restrictive laws are enacted, more efficient deterrents and more effective scientific devices to trap criminals are perfected, the more crime flourishes. No exaggeration exists with the statement that little more than five percent of all Game Law offenders are apprehended."

Executive Director Mert Golden said the state had "the best trained group of game protectors and the best game law enforcement in the nation." From 1960 to 1965, game law prosecutions increased almost 70 percent. Safety zone violations — hunting too close to occupied buildings — were common. Many sportsmen were also cited for hunting small game with shotguns that were not modified or "plugged" so they would hold only three shells, a regulation passed in 1961. (The three-shell limit was first applied to waterfowl hunting by federal law in 1935.) Game protectors worked numerous cases involving white-tailed deer, and after the state legislature authorized the Game

Commission to enforce littering laws, wardens found themselves arresting litterbugs as well.

The commission enacted or amended several laws to regulate hunting further. Some changes were designed to make hunting more sporting. Hunting from the road, for example, was outlawed, as were electronic calls for turkey hunting. Deer hunting parties were limited to 25 people. The Game Commission also set standard shooting hours, and it relieved landowners of any liability for injuries sustained by hunters.

In an effort to enhance the visibility of its officers, the Game Commission in 1968 required game protectors to be in uniform while on duty. The agency also bought cars for its officers, which not only provided the men with suitable radio-equipped vehicles but also cut business expenses. Formerly, wardens drove their own cars and charged the agency for mileage.



The commission worked to make its law enforcement program more effective and more visible as the incidence of wildlife crimes rose. In this 1960s publicity photo, Game Protector Al Bachman checks the license of Miss Pennsylvania 1967, Doris Ann Lausch — an active small game and deer hunter.

The Game Commission pushed for laws governing hunter safety as well. Hunting accidents, which averaged 477 per year through the 1960s, continued to haunt the agency. The voluntary hunter education program begun in 1958 seemed to be having little impact on the problem; accident totals for the 1950s and 1960s were comparable. John Behel, a game protector who was appointed the agency's first hunter safety coordinator in 1961, noted that hunter education efforts over the previous 30 years had resulted in a 40 percent drop in fatalities in Pennsylvania. But he also realized that hunting accidents weren't going to come down until hunter safety was made mandatory.

As early as 1963, Behel predicted the inevitability of a program requiring all hunters to complete a course in hunting and firearm safety. On March 28, 1968, Governor Raymond P. Shafer signed into law Act 30, requiring all first-time hunters under 16 to take a four-hour hunter safety course before they could purchase a hunting license. At the time, fewer than two dozen states had mandatory hunter education courses for first-time hunters.

That same year, a bill was introduced in the state House calling for big game hunters to wear at least 250 square inches of fluorescent orange material. Behel and the agency had been working toward that goal since at least 1966, and they chose fluorescent orange after reviewing statistics from other states where safety colors were mandatory. The bill didn't pass, a fate suffered by similar pieces of hunter safety legislation that surfaced over the next several years.

Still, the agency had made significant gains through the decade. Most importantly, the Game Commission was getting better at handling the wants and needs of an increasing number of hunters while protecting the commonwealth's wild resources through scientific management. It was also dealing with a widening scope of constituents as other residents began to pay more attention to wildlife. Those dealings provided valuable experience the agency could use as hunters and nonhunters alike became active participants in a stormy controversy surrounding the state's black bears.

10



Selling the Farm

THE STATE'S BLACK BEARS became a major point of focus for many in the beginning of the 1970s. Wildlife enthusiasts of all kinds — hunters, tourists, wildlife managers, legislators — worried about the bear's population status. Much of the anxiety was caused by the 1970 bear season closure, but experts had no ready answers. The bear's sparse density, propensity to inhabit rough and inaccessible terrain, and its nocturnal movements made study difficult.

The Pennsylvania Cooperative Wildlife Research Unit was gathering information for a black bear database. Dr. James Lindzey, head of the research unit, campaigned for restrictions on bear hunting until scientists could learn more. In 1969, Lindzey's team examined bears killed by hunters, and researchers determined the average age of harvested bears was 3.3 years. Two years later, the sample yielded an average of 2.8. The age decline made Lindzey wonder whether annual reproduction was keeping up with losses from hunting and other causes.

"This large difference alone may be significant, especially when one considers that the average female bear does not breed until 3.5 years old and gives birth to her first cubs at four years of age," Lindzey reported.

“To further complicate matters, the female bear only breeds every other year. . . .”

A two-day bear season was held in '71, but hunts were trimmed to a single day for the remainder of the decade. For a time, the agency considered prohibiting the shooting of female bears accompanied by cubs, or establishing a minimum legal field-dressed weight of 100 pounds.

Meanwhile, difficulties plagued Lindzey's researchers. The team had trouble finding bears and getting them to enter culvert traps. The project's budget was small, which sometimes resulted in a lack of proper equipment. Biologists built their own radio telemetry collars, and in the beginning they found it hard to fit the collars on captured bears. Additionally, the batteries that were available had short lives. Tracking the radio-collared bears was problematic, too, because the terrain usually required an airplane to locate and follow the animals — an expensive proposition.

Lindzey and his crew got a break in 1973 when the Game Commission established 25 mandatory bear check stations. Hunters were required by law to bring their bears to the stations, where the animals were examined. A year later, agency biologists began working with research unit members on bear studies. Both changes increased the number of bears that were checked, resulting in a larger study sample and more data. By 1974, the research began to unearth some vital information. Studies revealed that some female bears were beginning to breed at 2.5 years of age — the youngest age, by a year, ever recorded. Biologists also obtained a better understanding of how fall food conditions, bad weather and bear harvests fit together, and soon the database was sufficiently large to gauge harvest trends and measure some aspects of the bear population.

Bear harvests fluctuated during the early '70s. In the 1971 season, the first that decade, hunters killed 488 bruins over two days. The harvest dropped the next three years (which had only one-day bear seasons) to a low of 223 in 1974, and then it started upward. Biologists believed the low harvest in '74 was caused by bad weather, which resulted in fewer hunters afield. In 1975 the kill was 388, but the harvest figure was almost insignificant compared to what had happened to the level of hunter participation.

The bear season of 1975 saw an estimated 150,000 bear hunters take to the woods, an increase of about 50 percent from '73 — the most recent season with decent weather. The jump in hunter numbers concerned wildlife managers because it could lead to larger bear harvests, which the agency was trying to avoid. The commission had no means to control the number of bear hunters, and while officials were afraid to close the season again (for fear they wouldn't get it reopened) they could not ignore the increasing hunter participation and bigger kills. They decided keep bear hunting open in 1976, and within weeks their decision was challenged by an animal rights organization.

On September 15, 1976, the Fund for Animals, a New York City-based anti-hunting group, petitioned the U.S. Department of the Interior to declare the black bear an endangered species in Pennsylvania. "The consensus estimate of the black bear population in Pennsylvania in 1975 was less than 1,000," the group said. Fund for Animals also charged that "the demise of this species in Pennsylvania is



Legal challenges to Pennsylvania's bear seasons were beaten back, largely because the Game Commission had amassed years of research data. The establishment of mandatory bear check stations provided wildlife managers with valuable information on the bear population.

imminent unless prompt and appropriate federal intervention occurs.”

It's not known from what source the group had obtained its population estimate, but by this time the agency was able to respond with facts generated from more than nine years of bear research. Executive Director Glenn Bowers noted the reproductive rate of Pennsylvania's black bears was the highest in the country. This, he said, ensured adequate recruitment (population increase through, in this case, reproduction). Bowers put the minimum fall population estimate at about 2,400, more than twice the Fund for Animals' claim.

The Department of the Interior refused to list Pennsylvania black bears as endangered, based upon the evidence provided by the Game Commission. The season took place as scheduled, but it brought unexpected results. More than 200,000 hunters took to the woods, and they killed 605 bears in just that one day. The harvest meant either there were more bears than believed or the take was higher than it should've been. Lindzey leaned toward the latter. His data indicated about one-third of the bear population was killed in 1976, through a combination of legal harvest, poaching, and highway and other losses.

In 1977, despite pressure to close the season, the commissioners scheduled another one-day hunt. The decision came with a caveat: The season would be adopted only if further analysis of bear data supported it. At the same time, some biologists were proposing a bear hunting license to control hunter numbers. Other staffers called for a one-day, afternoon-only hunt to reduce the harvest. Neither plan garnered much support.

The Game Commission eventually decided to close the 1977 bear season because it couldn't control hunter numbers or direct hunting pressure. Also, data suggested the statewide average age of female bruins had dropped to a point where it threatened the bear population's ability to reproduce. Biologists feared a good crop of natural foods (which keeps bears active later into the fall) coupled with good weather (which brings out large numbers of hunters) might result in another big harvest; two large, consecutive kills could jeopardize the bear population.

The commission chose to close the bear season again in 1978, and by 1979, biologists estimated Pennsylvania had about 4,500 bears. Along with the relatively high population level came widespread bear

damage and nuisance complaints. The commission set a one-day season for mid-December, the timing of which was set to limit the kill: Researchers assumed most bears, especially pregnant females, would be in their dens by the time the season began. It didn't work out that way, though. Plentiful mast (tree fruits such as acorns and beechnuts) and mild weather kept bears out of winter dens, and on December 17, hunters killed 736 bears — the largest harvest since 1924.

Pennsylvania's elk herd also came under public scrutiny during the '70s. The agency had paid little attention to the herd since elk hunting ended in the early 1930s, but beginning in the 1960s, elk began making trips into farming areas northwest of their historic range in Elk County's Dents Run and Hicks Run drainages. It's not known whether these movements resulted from an increase in the herd (which since the 1930s was reported to average between 50 and 100 animals) or a change in habitat. Regardless, by 1970 farmers wanted relief. Some agriculturalists requested compensation for losses or implementation of artificial feeding programs to keep elk away from their crops. Others suggested alternatives such as fencing.

At about that same time, the Cameron County Soil and Water Conservation District and the North Central Pennsylvania Economic Development District proposed a 10,000-acre elk management area in Elk and Cameron counties. The proposal centered around tourism and economics, but in addition to projects such as elk observation posts, it also called for habitat improvements, winter feeding and annual censuses.

The proposal created a stir, which came to a head at an October 1970 meeting in Emporium. Government officials, legislators, farmers and hunters attended, but the gathering quickly became a sounding board for disgruntled farmers and ambitious planners. Executive Director Bowers wasted little time explaining the Game Commission's position, saying he didn't believe sportsmen's dollars should be committed to a "Chamber of Commerce-type program." But it was his remarks regarding crop damage that probably had the most effect.

"It's time we generated a realistic feeling toward these elk," Bowers said. "Some people feel they are sacred. A person who suffers elk

damage has every right, morally and legally, to kill an elk.”

Farmers had always assumed they weren't allowed to shoot elk for crop damage. That assumption quickly changed with Bowers' comments, and farmers shot several bull elk in a matter of days following the meeting. Some residents became angry, and talk soon spread that farmers were going to wipe out the herd. Responding to the concerns, the Game Commission pledged to improve elk habitat on public lands. The agency also became involved in an elk study headed by Dr. John L. George, a professor of wildlife management at Penn State University.

The Penn State study (implemented in 1970 with help from the Game Commission, Department of Forests and Waters, and the North Central Pennsylvania Economic Development District) focused on the elk herd's ecology, population dynamics and movements. Although lack of funding killed the study in 1974, its four years of research provided the first in-depth look at the elk herd and became the genesis of Pennsylvania's elk database.

The first elk census, conducted in 1971 under the Penn State study, found about 65 animals. Historically, herd estimates had ranged from as few as 25 animals to as many as 500, depending on the source. By 1974, the census showed the herd numbered only 38 animals — a decline that was likely due to brainworm, a parasite. Penn State researchers diagnosed the brainworm problem through necropsies, or autopsies, performed on elk they found. The worm — typically acquired by elk when they ingest snails and slugs while feeding on grass — damages the central nervous system and brain. The brainworm epidemic seemed to abate after 1974. For 18 years after that, only 28 elk were known to have died from the parasite, and yearly mortality from brainworm was never more than five animals.

In 1976, the Game Commission developed a habitat management plan for elk, one that would protect land in the elk range as well as increase timber harvests and land clearings on state properties. The clearings supported a variety of grasses and other non-woody plants that elk prefer. The policy was administered in cooperation with the Department of Environmental Resources' (formerly Department of Forests and Waters) Bureau of Forestry, which controlled far more land in the elk range than did the Game Commission.

Following the brainworm outbreak, the herd began a steady climb

of about 20 percent per year, and by 1981, it had reached 135 elk. Researchers believe forest habitat improvements helped the elk by keeping them away from people who would kill them — namely farmers and poachers. Some experts also speculate that dry weather during the eight-year span may have suppressed snail populations, thus reducing the occurrence of brainworm. Others believe the presence of researchers, and a growing number of elk watchers, in the area discouraged illegal killings. Of course, it's also possible that census refinements made for more accurate herd counts.

The 1970s brought increased attention to the plight of many nongame species, particularly some high-profile animals whose populations were in serious decline. Most of the focus was on birds of prey.

In 1970, Governor Raymond P. Shafer signed legislation protecting the goshawk, sharp-shinned hawk, Cooper's hawk and snowy owl. Other raptors — the turkey vulture, red-tailed hawk, red-shouldered hawk, broad-winged hawk, rough-legged hawk, merlin, northern harrier, peregrine falcon and barred owl — had already received protection through the 1934 amendment to the Game Law.

Not all birds were so fortunate: The great horned owl, crow, kingfisher and blue jay were still classified as pests and often shot. But the signing of the amended Migratory Bird Treaty with Mexico on March 10, 1972, gave new, nationwide pro-



Pole traps for taking raptors were outlawed in 1972. Great horned owls (one is shown caught in a pole trap) were passed over when the state protected many birds of prey in 1970. The species finally received federal protection in 1972.

tection to 32 families of birds, including all birds of prey. On the state level, Governor Milton J. Shapp signed a law outlawing pole traps (used to take raptors) the same year.

Also in 1972, the U.S. Environmental Protection Agency banned DDT for agricultural uses. Other chlorinated hydrocarbon pesticides such as aldrin, dieldrin and endrin — long suspected of harming reproduction among raptors — were also removed from the market.

As important as the efforts were, they alone would not be sufficient to rescue the peregrine falcon and bald eagle. Fall migration counts conducted at Pennsylvania's Hawk Mountain Sanctuary showed these species at record lows in 1973.

The peregrine, already listed as an endangered species, got some help from Cornell University in the early '70s. Dr. Tom Cade succeeded in using several subspecies of captive peregrines to produce eggs and, ultimately, offspring. In 1973, a score of young was hatched. The next year produced 23 more and marked the beginning of hacking attempts, efforts to release the falcons into the wild.

Hacking involves putting young birds into a large cage or "hack box" placed on a high perch. The birds are fed daily and after about a week — when their feathers have filled in — the enclosure is opened. Hacking personnel continue to provide food for the young birds as they begin to flap and test their wings. The birds eventually start to fly and forage for food. The hack box serves as their home base for a short time before they disperse. Hacked birds such as falcons occasionally return to their release sites the following spring during nesting season.

From 1977 to 1978, there were three attempts to reintroduce falcons along the Susquehanna River. The Peregrine Fund, which was spearheading most attempts to return falcons to eastern states, took part in all three. The first project was carried out at a cliff near Wysox, the site of the state's last known breeding peregrine falcon pair. It ended when great horned owls killed the young falcons.

The second and third hacking projects were made from an area known as the Dauphin Narrows, just north of Harrisburg. Three falcons fledged successfully in the first attempt at the Narrows, but in the second try a year later, great horned owls grabbed three of the five young peregrines. A fourth died and the remaining bird was trapped and removed before project leaders abandoned the effort.

In 1979, the Game Commission planned to hack birds from atop the Fulton Bank building in downtown Harrisburg, but the agency was unable to obtain any falcons. The few peregrines available that year were slated for release sites along coastal marshes and estuaries. Within two years, though, four peregrines were successfully hacked from a ledge on the 34th floor of the Philadelphia National Bank in a project backed by the Game Commission and the Peregrine Fund.

Throughout the 1970s, bald eagles recovered little from the devastating effects of pesticides and pollution. One to three pairs typically nested each year in northwestern Pennsylvania, and others were spotted along the Delaware River and occasionally at the Middle Creek Wildlife Management Area. Reproductive success was poor, the eggs rarely hatching because the problem of thin eggshells caused by DDT still existed.

In 1974, the Game Commission accepted the federal endangered species list as its own, and the General Assembly also authorized the agency to amend the list. Four years later, the commission and the U.S. Fish & Wildlife Service (USFWS) signed a cooperative agreement to launch an endangered species program in the commonwealth. Under the agreement — a product of three years of negotiations — the federal government provided \$2 for each dollar spent by the commission to determine the status of, and improve conditions for, endangered and threatened species. Funding was guaranteed for five years.

The Game Commission began working toward a bald eagle recovery. In 1979, biologists placed a five-week-old eaglet, which had been hatched at the USFWS's Patuxent Research Center, in a nest at the Pymatuning Wildlife Management Area. The owners of the nest had earlier in the year failed to hatch two clutches of apparently thin-shelled eggs. The adult eagles immediately adopted the young bird.

The commission conducted another eagle experiment in 1979 at the Middle Creek Wildlife Management Area, this one involving a two-year-old bird that had been removed from the wild at the age of one year and had been kept in a zoo for about a year. The eaglet was turned over to Middle Creek manager Charlie Strouphar, who placed it in a holding cage. He fed it by placing live catfish in a partially filled swimming pool. The eagle quickly taught itself how to fish, and it was released after about four weeks. It hung around the lake catching fish

for about a week, after which it left and never returned.

In 1980, Game Commission biologists and field personnel monitored nests to learn more about eagle reproduction. Through daylight watches, crews kept an eye on two nests at Pymatuning and one at Conneaut Marsh. Nest observation was only one of their tasks. The men also chased off hikers and bird-watchers who got too close, and the commission's presence soon discouraged informal tours of the nest sites. The lack of disturbance brought results.

"Four eaglets were hatched — more than ever before," wrote Game Commission biologist Mike Puglisi. "And all three nests produced young, a feat that never occurred in the 20 previous years for which we have records."

By 1980 the Game Commission had also joined with the National Audubon Society to finance an osprey reintroduction. Twelve birds were hacked by researchers at East Stroudsburg University. It was the Game Commission's first project under its new Working Together for Wildlife program, which sold patches, decals and, later, fine-art prints to raise funds principally for nongame wildlife management.

Even as the Game Commission and its new partners worked to restore some nongame wildlife populations, federal and state lawmakers boosted environmental efforts. In Pennsylvania, men like Representative Franklin L. Kury moved to end the state's "century of exploitation," as he termed it. In 1969, Kury and 29 other House members introduced a constitutional amendment declaring all Pennsylvanians have the inherent right to a clean and natural environment. It passed two General Assembly sessions, and in the May 1971 primary voters approved it as a ballot referendum. It read:

"The people have a right to clean air, water, and to the preservation of the natural, scenic, historic and esthetic values of the environment. Pennsylvania's public natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the commonwealth shall conserve and maintain them for the benefit of all the people."

The laundry list of state and federal actions initiated during the late 1960s and through the 1970s resulted from grass roots involvement in

environmental issues. Citizen input prompted Congress to pass the National Environmental Policy Act (1969), Clean Air Act (1970), the Clean Water Act (1977) and the Surface Mining Control and Reclamation Act (1977).

Mining controls had a profound effect on wild resources, particularly in Pennsylvania. At the time of the mining act's passage, abandoned surface mines in Pennsylvania accounted for a quarter-million acres, and active mining was occurring on tens of thousands more. The federal surface mining act was designed to preserve water quality and reduce mining's impacts on fish and wildlife. It also created a fund for abandoned mine reclamation, which primarily involves backfilling of mine sites with topsoil and revegetating the areas through seeding and tree planting.

Both the Surface Mining Control and Reclamation Act and the National Environmental Policy Act (NEPA) made the Game Commission an active participant in environmental reviews. NEPA required "environmental impact statements" on any land-altering activity involving federal funds or agencies — projects such as highway and dam construction, and timber-cutting operations on federal property.

Under NEPA, wildlife and unique or dwindling habitats became more important than ever. Their existence on a construction site, for example, required special attention and possibly even mitigation (negotiations to replace, restore or compensate for habitat affected by development). This was especially true for projects threatening critically important areas such as wetlands, unique wildlife breeding grounds and areas that harbored species of unknown population levels.

The commission's Bureau of Land Management began providing data for NEPA environmental impact statements in the early '70s, and it started handling mine applications about 10 years later. The agency's involvement ensured that wildlife was given due consideration during the planning or execution of construction and mining.

People were finally beginning to realize how important a clean environment was to humans and wildlife, and why the quality and quantity of wild habitat were the chief factors affecting the survival of wild animals. But for a time, one class of wildlife thrived even as its habitat was in jeopardy.

Waterfowl numbers rose in the late 1960s, following a long,

continent-wide decline that started in the mid-'50s. Waterfowl populations climbed in spite of the fact that wetlands — vital to reproduction — were disappearing at a rapid clip. From the mid-1950s to the late 1970s, Delaware, Maryland, Pennsylvania, Virginia and West Virginia lost about 133,000 acres of inland vegetated wetlands. Pennsylvania alone lost 1,200 wetland acres per year during that period.

But favorable spring weather cycles of the late 1960s filled potholes (small, natural depressions that hold water and account for a major portion of waterfowl nesting) in Canada and the U.S. prairie with water. The conditions, which prevailed through the 1970s, resulted in exceptional waterfowl production. Waterfowl harvests for the Atlantic Flyway (Maine, Vermont, New Hampshire, Connecticut, Massachusetts, Rhode Island, New York, Pennsylvania, West Virginia, New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia and Florida) increased through the '70s. Flyway mallard harvests rose particularly high, from a yearly average of 279,000 in the



Waterfowling experienced a peak in the 1970s as annual spring rainfall during the late '60s created excellent nesting conditions for ducks and geese.

late 1960s to 436,000 in the late '70s.

More hunters began to take up waterfowling, too, but harvests continued to rise even after the participation level stopped climbing. In 1971, federal duck stamp sales in Pennsylvania (87,661) and in the United States as a whole (2.4 million) reached all-time highs. Sales declined after that, despite excellent fall migrations and generous waterfowl seasons and bag limits. In 1976, for example, Pennsylvania hunters shot 183,000 ducks — a record. From 1965 to 1976, Atlantic Flyway duck harvests, including Pennsylvania's, roughly doubled.

During this time, many biologists began an aggressive campaign to end the use of lead shot for waterfowl hunting. Some estimates claimed that two million to three million ducks were dying in America each year as a result of lead shot poisoning. In 1976, USFWS banned lead shot, immediately requiring waterfowlers in nine Atlantic Flyway states to use steel shot in areas of high duck densities where the threat of lead poisoning was greatest.

In 1977, the service asked the Game Commission to implement steel shot hunting zones at Middle Creek Wildlife Management Area, along the Susquehanna River from Northumberland to the Maryland line, and in Crawford County. Pennsylvania agreed, even though it didn't have to.

The following year, Congress enacted a binding measure known as the Stevens Amendment that prohibited USFWS from instituting steel shot regulations unless the affected states approved. But despite the amendment, the Game Commission left its regional steel shot program in place. (By 1987, the USFWS had cleared legal obstacles to a nationwide lead shot ban and set 1991 as the deadline for all states to comply; Pennsylvania banned lead shot for waterfowling in 1988.)

Along with steel shot regulations, the Game Commission began to investigate the efficacy of its waterfowl propagation program. The State Wild Waterfowl Farm at Crawford County's Conneaut Marsh, in operation since 1951, produced for stocking purposes more than 200,000 mallards in its first 23 years of operation. While it was popular with sportsmen, wildlife managers saw farm-raised ducks as a waste of time and money. The agency had just terminated its 42-year-old quail propagation program for the same reason: After four decades of releasing 5,000 to 10,000 quail each year, the state still didn't have

sizable bobwhite populations. Biologists suspected that releasing pen-raised mallards was having the same effect, and they believed the stocked birds could also be spreading diseases among wild ducks.

From 1976 to 1981, biologist Fred Hartman evaluated game farm mallards and wild mallards in Pennsylvania. He found that many pen-raised birds — released in early summer at four to five weeks of age — were lost to predators and other causes well before hunting season arrived. The study also showed stocked mallards that did reach maturity often left the state and were harvested elsewhere. All together, Pennsylvania hunters got to shoot only about 2 percent of the ducks they'd paid to raise and release.

“Wild mallards give a better return to the hunter, are longer lived and have better reproductive potential,” Hartman said. “Putting a game farm duck in the hunter’s bag is expensive. This money could be better spent providing suitable habitat for wild waterfowl.”

In August 1980, after considerable discussion on a preliminary report of Hartman’s research, the commissioners deadlocked on a vote to close the farm. Fourteen months later, however, commissioners did close it, by a 4-3 vote, and in early 1982, the farm’s remaining ducks were released into the wild.

In 1980, the commissioners also decided to shut down the State Wild Turkey Farm, which had produced more than 200,000 birds over a 50-year period. Attempts to terminate it were begun, at least publicly, by Commissioner Dave Drakula of Emporium in 1978. His effort, though unsuccessful, renewed attention on the trap-and-transfer program.

Wild turkey relocations had been almost solely responsible for reestablishing populations in many areas, but the program had begun to suffer from neglect. From 1970 to 1977, 880 turkeys had been captured and relocated; in 1978, only 10 birds were transplanted. A kick-start of the trap-and-transfer program came the following year, and because wild turkey populations by that time were strong in many areas of the state, commissioners decided to begin a gradual reduction of turkey propagation.

The decision was made a little easier by the existence of the policy

that prohibited releases of game farm turkeys where wild populations existed, but the move reignited debate over the fate of the turkey farm. Commissioners who opposed ending the program said stocked turkeys ensured that almost all Pennsylvanians could hunt turkeys close to home. Biologists, though, had learned that only about 1 percent of the birds released survived the first six months after release, according to returns on banded game farm birds.

Moreover, the biologists said, turkey propagation was hurting wild turkey management.

"It had become increasingly apparent to the Game Commission that the rising controversy over stocking game farm birds was having a debilitating effect on turkey management in Pennsylvania," biologist Gerald Wunz said. "Even though in recent years the birds were being raised mostly for put-and-take shooting, they were siphoning efforts and funds away from other management measures that could help turkey populations and improve their habitat. They also gave a false sense of security by creating the impression that habitat and range deficiencies, and even overshooting, could be rectified by the annual release of game farm turkeys."

At an October 1980 meeting, the commissioners voted 4-3 to stop turkey propagation. Remaining stock from the State Wild Turkey Farm was released the following spring, and the Lycoming County facility was converted to produce ring-necked pheasants, a once-prevalent game bird that had fallen on hard times.

Pennsylvania's pheasant population hit its peak around 1970, and estimated harvests in the early '70s averaged about 1.3 million birds per year. But as farmland habitat disappeared or became less accommodating to wildlife, ringneck populations and harvests began to plummet until by 1977 the harvest was only 836,000.

Biologist Fred Hartman and others had been warning hunters as early as 1969 that pheasants were going to decline from habitat loss, but few heeded their words because the birds seemed plentiful.

"Many hunters are unaware of or unconcerned about this loss of farmland," Hartman wrote. "But the fact remains that pheasants (and other farm game) and farmland go hand-in-hand. Without proper

habitat — usually extensive diversified farmland — high pheasant population levels will not exist.”

The Game Commission began tinkering with its propagation program. It implemented a new pheasant management policy in 1974 that terminated spring stockings and required in-season releases to be made the first two weeks of season. The plan also increased trap-and-transfer of wild birds and eventually phased out the day-old chick program. (The day-old chick program, in place for decades, paid people \$1 for each healthy pheasant they raised to 12 weeks of age.) The new policy was intended to save money by terminating unproductive ventures, and at the same time the agency hoped it would improve the harvest rate of stocked pheasants. But it had little effect on what was happening afield; studies continued to show natural reproduction accounted for more fall ringnecks on good pheasant range than any other factor.

From 1970 to 1980, the agency doubled its propagation of game farm ringnecks in attempt to improve pheasant hunting. For a short time, the increases appeared to stabilize pheasant harvests, as recorded by the Game-Take Survey (a scientific, random survey of hunters and their harvests implemented by the agency in 1971). In fact, the harvest went up in 1979 and 1980. But in the years that followed, it became apparent — as harvests dropped to new lows — that putting out more birds wasn’t solving the problem.

Natural pheasant reproduction, which according to Hartman was completely responsible for the strength of pheasant populations in the bird’s primary range, had fallen dramatically as farmland habitat changed. Economic conditions forced Pennsylvania farmers, who oversaw relatively small operations compared to those in many other regions of the country, to become more productive. They began mowing their hayfields earlier and more often (and at faster speeds), which frequently destroyed pheasant nests and killed sitting hens. Practices such as no-till farming, which uses more insecticides and herbicides than traditional farming, reduced weedy cover and insect stocks that pheasant chicks need to survive.

To make better use of their land and to accommodate larger machinery, farmers removed fencerows and windbreaks that pheasants and other farmland wildlife used as cover and travel lanes between

feeding and roosting areas. Ringnecks were forced to travel longer distances across inhospitable terrain to reach food and cover, leaving them more exposed to predation by domestic cats, hawks, owls and foxes. The broken-up farmland also attracted a variety of nest predators — egg eaters such as opossums, skunks, raccoons and crows — that reduced farmland wildlife nesting productivity. To add to their problems, the birds found themselves moving across more and more highways as well, increasing the chances they would be hit by cars.

Despite farmers' efforts to keep up with the demands of the times, many had to sell their lands. More often than not, the properties wound up in the hands of developers. In 1965, Pennsylvania had about 85,000 farms. By 1980, the number had dropped to 62,000. During that period, more than two million acres of farmland disappeared, much of it in the prime pheasant range of southeastern and southwestern Pennsylvania.

Ringnecks weren't the only birds that suffered. The same habitat problems that plagued the pheasant had impacts on eastern meadowlarks, bobolinks, upland sandpipers, and grasshopper, Henslow's, Savannah and vesper sparrows. These grassland nesting birds also depend on hayfields, meadows or pastures for food and cover and nesting sites.

Even as farmland wildlife habitat declined, the outlook for Pennsylvania's forests was bright. The Game Commission was buying land at a fast rate; during the 1960s and 1970s it purchased a quarter-million acres — mostly forested — for its game lands system. The agency increased its complement of foresters to survey habitat conditions on game lands and plan timber sales. The agency sold timber contracts on its million-plus forested acres to private firms as a way of improving forest wildlife habitat, a procedure that also brought in a great deal of revenue.

Timber plans on many game lands called for small clearcuts, which created habitat diversity and satisfied more living requirements for more species. But as agency forester Don Croft noted, conflict often arose between those who wanted the commission's acreage to provide thick cover and those who wanted open woodlands.

“Overlooked frequently by advocates of either extreme is the fact that a good interspersion of a variety of cover types, including brush and mature forest, provides better habitat for most woodland wildlife,” Croft said.

The Game Commission’s timber-cutting operations increased as its trees grew to marketable size. During the 1960s, the commission’s timber program brought in \$1.5 million from about 35 million board feet of sawlogs. Over the next 10 years, timber operations cut more than 90 million board feet of sawlogs, gaining more than \$6 million for the agency.

In 1972, the Game Commission implemented the Cooperative Forest Game Program, patterned after the highly successful Cooperative Farm Game Program. The new version encouraged owners of large forested tracts to open their lands to public hunting. In return, wildlife conservation officers increased patrols of enrolled lands to reduce illegal activities such as poaching and littering. The program signed up more than half a million acres in its first year.

The agency’s timber management strategies continued to provide excellent food and cover conditions for forest wildlife, especially white-tailed deer. Several of the changes in farming practices had a positive effect on the herd, too. Whitetail harvests in the 1970s skyrocketed to an average of 64,000 bucks per year, an increase of 10,000 over what it had been the decade before. During the ’70s, the Game Commission managed the deer herd by a strategy known as maximum sustained yield, which permits the greatest harvest of deer that can occur each year without changing the size of next fall’s population.

The commission adopted a new deer policy in 1976, one that recognized a growing interest in deer on the part of nonhunters. It read, in part:

“The Commission recognizes that deer belong to all citizens of the commonwealth and that recreational hunting is a privilege, not a right.

“The Commission recognizes its legislative mandate to manage deer on a sustained yield basis for the benefit of the resource and consumptive as well as the non-consumptive user.

“The Commission recognizes that recreational hunting is a major use of deer. Consistent with its responsibilities to the resource and the

people, the Commission will endeavor to manage deer on the basis of: compatibility with other land uses; maximum overall recreational opportunity; maximum sustained yield harvest, and maximum aesthetic appeal.”

Agency biologists worked at developing more accurate population estimates. Perhaps more importantly, they set new management goals based on how deer populations affect tree regeneration and food sources in the state’s mixed-oak and northern hardwood forests.

Forest size classes have varying deer carrying capacities, and the ability of a woodland to support deer changes with time. Forests provide plenty of browse and other deer foods for the first 10 years or so. After that, almost all of the trees have grown to pole timber size, a growth stage at which deer cannot reach even the lowest branches. In addition, pole stage timber does not produce much mast, and its upper-story foliage shades the forest floor and suppresses the growth of ground vegetation. But in 30 or 40 years the forest matures to saw



The agency’s timber management strategies created prime deer habitat, and whitetail harvests took a big jump. During the decade, the Game Commission reexamined its deer management responsibilities while refining population and habitat carrying capacity estimates.

timber. Mast production increases substantially, providing more food for deer.

Through their research, biologists assigned overwinter deer density goals to each age class of trees. The objectives were designed to ensure deer would not overtax their habitat in winter, when natural foods are in shortest supply. Keeping populations at or near the goals would help both deer and their environment remain healthy and productive. Seedling/sapling stands provide the most food and support the largest deer densities; the opposite is true for pole timber stands. In 1979, after years of collecting deer population and habitat data, biologists established county deer goals predicated upon the seedling/sapling, pole and saw timber components found in each county.

Under the new program, a county's deer population goal was determined by adding up the square miles of each forest size class found there and multiplying that figure by the densities the commission had assigned to each category. In order to reduce the deer's impact on forest regeneration and agriculture, the goals were set below each county's actual deer carrying capacity.

The agency immediately incorporated the new overwinter deer density goals into the antlerless deer license allocation formula, thereby increasing the sophistication and reliability of the process.

"The ultimate goal is to tailor deer numbers to levels more compatible with natural food supplies and other land uses," biologist Harvey Roberts reported in 1979. "While there will be changes in the traditional [deer] population centers and attendant harvests, the implementation of more realistic and harmonious herd control will assure that deer management remains in the hands of the Pennsylvania Game Commission where it belongs."

Improving forest habitat conditions and an expanding deer population meant more opportunities for hunters who wanted alternatives to shooting deer with centerfire rifles or traditional archery equipment. In 1973, compound bows — which had been developed several years earlier — became legal for taking deer and other game. Only three years earlier, the Game Commission had outlawed them.

In 1974, the agency experimented with a three-day flintlock rifle hunt on 37 game lands around the state. Participants were required to buy a special muzzleloader license for \$3.25, and the flintlock hunters

bagged 65 deer, including four bucks. The season expanded in subsequent years and went statewide in 1979.

Hunting also changed significantly in 1980 when the General Assembly passed a bill requiring all deer, bear and groundhog hunters to wear at least 100 square inches of fluorescent orange. The legislation was a product of many years of lobbying by the Game Commission, and it was intended to reduce mistake-for-game and line-of-fire accidents. Fluorescent orange, the agency said, would make hunters far more visible and reduce the likelihood of such accidents.

Hunting accidents declined throughout the 1970s as a result of mandatory hunter education, safer firearms and ammunition, and increased use of fluorescent orange clothing. The average number of accidents per year dropped by a third, to 319, over what it had been the decade before. While that may not seem a drastic reduction, the number of hunters afield had risen sharply over the same period. The accident rate (accidents per 100,000 hunters) fell from 55 in 1960 to 14 in 1980, a 75 percent decline.

"It's quite obvious that since hunter education became mandatory in Pennsylvania, hunting has become a safer sport here," Hunter-Trapper Education coordinator Jim Filkosky said in 1981. "No activity is accident-free. But as the years go by and a constantly increasing percentage of our hunters are those who have taken a hunter education course, our accident rate should continue to drop."

Hunter education didn't seem to be slowing the incidence of game law violations, though. From the 1950s to the '70s, prosecutions for Game and Wildlife Code violations more than doubled. The Game Commission responded to increasing wildlife crime by expanding its radio network and by authorizing some 1,500 deputy game protectors to install radios in their cars. The system was further improved when game protectors began putting radio base stations in their homes.

The communications enhancements enabled officers to reach crime scenes much more quickly, often before violators fled. In addition, they provided an added sense of security to officers working in remote or dangerous areas. That was important to many field officers, especially after an incident that occurred in the early morning hours of September 16, 1973.

Game Protector Gary Becker and Deputy Glenn Herring were

pursuing a car driven by a suspected deer poacher in Adams County. During the chase, someone fired three rounds from a .243 caliber rifle at Becker's car. One bullet smashed through the windshield, passed through Becker's headrest and blew out the back window. The game protector was treated for upper body wounds caused by bullet fragments and glass chunks. The men responsible were later apprehended, convicted and imprisoned.

In 1976, the Game Commission formulated its Sportsmen Policing Our Ranks Together (SPORT) program to curb hunter disrespect and misconduct, and to improve the public's perception of hunters. It encouraged sportsmen to support conservation law enforcement, report violators and present a good image while afield.

In much the same way as SPORT was designed to help enhance hunting's image, the events of the 1970s had contributed to the improvement of the Game Commission's image as a professional wildlife agency. It had tossed out antiquated programs and updated ongoing projects with the best science available. Its efforts were aided by society's awareness of the environment, which had progressed to the point that in some instances the public considered wildlife as important as the economy and the standard of living. Still, the commission was nearly powerless to stop wildlife declines that resulted from vanishing habitat. And while the agency had made vast improvements to its deer management system, the herd had grown to a level almost beyond anyone's control.

11



Back from the Brink

DESPITE IMPROVEMENTS to Pennsylvania's deer management program during the 1960s and '70s, the deer herd of the 1980s rose far beyond the population densities sought by the Game Commission. Pre-hunting season estimates for whitetails climbed to 900,000 in the early '80s, and densities surpassed 50 deer per forested square mile in some areas. The deer management system established at the end of the 1970s set county density goals based on the habitat makeup of each county. Because the system represented a radical departure from past practices, the agency decided to institute the program cautiously by issuing fewer antlerless licenses than the new system actually called for.

The agency's decision to take a conservative approach was also influenced by three consecutive hard winters in the late '70s, in which thousands of deer died in deep snow, ice and freezing temperatures. The commissioners set county antlerless allocations to compensate for the high winter mortality and guard against overharvest. But those severe winters and low antlerless allocations were followed by several mild winters in the early 1980s that affected deer reproduction.

Mild winters can allow deer numbers to increase exponentially. Not

only are there more females left after the winter to produce young, but more does also tend to have more than one fawn because they come through winter in better physical condition. The agency's population projections — and hence its antlerless allocations — were based on normal winters, and biologists didn't immediately realize how quickly the herd had grown. And when biologists began recommending larger numbers of antlerless licenses, pressure from hunters and their elected officials kept the lid on allocations. As a result, antlerless allocations could not keep pace with herd growth. And the mild winters continued, compounding the problem.

Up until the early 1980s, deer hunting opportunities had changed little in several decades. Hunters were entitled to one deer per year; if they shot a buck, any antlerless license they might've had was invalid. But in the mid-1980s, when biologists wanted to begin an aggressive reduction program, the restrictions worked against management strategies. By allowing hunters only one deer, the agency was in effect reducing hunting pressure at a time it wanted more deer — especially does — shot.

To make matters worse, hunter success rates were dropping. Sportsmen found it harder and harder to locate a place to hunt, and, perhaps for that reason, they were spending less time on deer hunting. A decline in success rates meant the agency had to sell more licenses to kill the same number of deer that previous allocations had provided. In 1983, the agency allocated for the first time more than 500,000 doe licenses. Disgruntled hunters and legislators branded the number excessive. The agency stood its ground, but 15,000 antlerless licenses remained after sales closed.

For several years, the commission was unable to sell its entire antlerless allocation, seemingly having reached a saturation point at half a million licenses. By 1986, the number of unsold licenses had doubled to 30,000. Hunters complained about how high the allocations were, and a few people accused the commission of raising allocations so it could make more money. More than a few questioned the need for increased antlerless harvests, saying the commission was selling out to agricultural and forestry interests that were calling for herd reductions.

But it wasn't only farmers and foresters who wanted to see the herd

cut. City dwellers, suburbanites and park officials were campaigning for more antlerless licenses as well. Deer were causing problems on the highways, and they were eating thousands of dollars' worth of ornamental shrubbery and backyard garden produce. Whitetails also destroyed habitat in metropolitan wildlife sanctuaries as they clipped ground cover that other species needed to survive. And suburban residents soon learned about the deer's role in the life cycle of Lyme disease, a bacterial infection that can cause arthritic, cardiac or neurologic disorders.

The white-tailed deer, although a symbol of Pennsylvania's wilderness to many, was increasingly becoming a nuisance: People were beginning to refer to deer as "rats with hooves."

In 1986, the Game Commission lengthened the antlerless deer season from two to three days to increase the harvest. It was the first three-day season in 18 years, one that set the standard for seasons to



For many years, hunters were allowed only one deer per license year, a convention that stood in the way of heading off the exploding growth of the herd. The agency had trouble selling its entire allocation of antlerless licenses until it instituted the bonus program, in which hunters could purchase unsold tags to take a second (and later a third) deer.

come. But adding a third day didn't solve the problem; it produced an additional harvest of only 5 to 10 percent.

The following year, the agency instituted a major change in its deer management program when it implemented the so-called "bonus" system in the Southeast Special Regulations Area. Under the experimental program, hunters were permitted to buy as "bonus tags" any unsold antlerless licenses in Bucks, Chester, Delaware and Montgomery counties that still remained three weeks after sales began.

The program worked so well the commission implemented it statewide the following year, and the problem of unsold licenses disappeared. In the first two years, hunters were permitted to buy one bonus tag; they could buy two beginning in 1990.

Bear management continued to be a source of controversy. Pennsylvania was home to 4,000 to 5,000 bears by 1980. Hunting restrictions — county and statewide closures, and one- and two-day seasons — had increased the bear's numbers. Inclement weather during a few hunting seasons had also limited harvests.

One of the biggest controversies to arise was the abolition of the cub law. The large bear harvest of 1979 had included about 120 cubs, which were illegal kills under a 55-year-old law that stipulated only bears one year or older could be taken. Biologists believed the law was a waste of the resource because cubs were either confiscated at check stations or left in the woods by hunters who discovered they'd made an unlawful kill.

Biologist Gary Alt wrote to Executive Director Glenn Bowers, recommending repeal of the cub law.

"The present regulation creates an enforcement problem because large solitary cubs are indistinguishable from small, legal bears, even by experts, under field conditions," Alt wrote. In addition, he noted that the law did little to reduce cub mortality. Comparisons with other states showed the same percentage of cubs was shot regardless of whether there was a cub law in place. Furthermore, the bear management program lost valuable information when illegal cubs and small, legal bears that had been killed were left in the woods.

Bowers and the commissioners agreed with Alt, but the public did

not. When the agency abolished the cub law in 1980, hundreds of people wrote in opposition. Each letter received a reply explaining the decision, and Alt gave talks throughout the state to reinforce the agency's position. But because the cub law had its basis in emotion and not science, it took several years for the uproar to die down.

In the midst of all this, Fund for Animals petitioned a federal judge to halt the one-day bear season the commission had set for 1980. Three days before the season, the animal rights group sought a temporary restraining order from U.S. District Judge John B. Hannum in Philadelphia. In its request, Fund for Animals argued it was possible for hunters to shoot bears that had traces of tranquilizing drugs in their systems. Game Commission biologists used tranquilizers to anesthetize bears captured during studies, and wildlife conservation officers used similar drugs in trapping and transferring nuisance bears. Judge Hannum listened to testimony over the weekend and, one day before the season was to begin, permitted the hunt to take place.

Controversy aside, bear management made great strides during the decade, most of it due to Alt's research. With the help of technicians and volunteers, Alt uncovered new data on bears' daily movements, denning, reproduction and dispersal. He discovered the state's bears appeared to be breeding at earlier ages, breeding more regularly, and producing larger litters than bears in other places. "Abundance and dependability of natural and man-related foods is suspected to be the cause," Alt wrote in 1982. Because of that, he said, a larger percentage of the state's bear population would have to be harvested each year to stabilize bear numbers.

Alt's research indicated bear hunting restrictions should be relaxed, and bear season was expanded from 32 to 41 counties in 1982. The following year, the annual one-day season was increased to two days. In 1986, a three-day bear season was held across the entire state, the first statewide hunt in seven years.

For decades, deer and bear reigned as the largest huntable animals in the state. But that nearly changed in the summer of 1982 when the Game Commission announced it was going to hold a lottery for hunters wishing to kill a Pennsylvania elk. The plan became big news;

hunters hadn't been permitted to kill elk in the state since 1931.

The elk herd had by the early 1980s grown to 135 animals, a big jump over what it had been just a decade before. As the herd increased, so did the number of crop damage complaints. Many commission officials considered the hunt a chance for selective harvest and tightly focused management, a better alternative than farmers shooting depredating animals without regard to sex or age. The proposed hunt was intended to cut the herd roughly in half within several years. Under the proposal, sportsmen who wanted to participate in the lottery would pay \$10. Thirty applicants would be then drawn for a \$15 elk permit. A second drawing would determine what sex of elk each hunter could shoot.

While the plan appealed to many hunters, it didn't sit well with residents in the elk's home range. Some locals didn't like the idea of out-of-towners killing "their" elk. During 1982, 15 elk were shot illegally and 11 others were killed for crop damage. When mortality from all causes was tallied that year, the herd had lost 35 animals; the need for an elk hunt died with them.

But elk crop damage continued. The Game Commission and the Department of Environmental Resources' (DER) Bureau of Forestry drafted a new cooperative elk management plan to keep the animals away from crop fields. Foresters and land managers created grassy openings on public lands through timbering, prescribed burning and mowing. They also enlisted the help of farmers (through sharecropping programs) to plant legumes such as alfalfa and clover to hold the elk in the forests. Under the plan, wildlife experts also instructed farmers on how to make their lands less prone to crop damage.

In 1983, the two state agencies helped form an elk committee to serve as a conduit between wildlife managers and people who lived in the elk range. The committee included farmers, sportsmen and other citizens.

During this period, the Game Commission improved its survey and inventory techniques to get a better estimate of the elk population. In the early 1980s, biologists began fitting elk with marking collars that helped track herd movements. Soon afterward, they began using radio telemetry collars, and ensuing studies gave them a clearer picture of elk food preferences, habitat uses and seasonal movements. Through

these investigations, the agency realized the importance of acquiring land in certain portions of the elk range.

Even as the populations of many forest game species were increasing, times were tougher for farmland game animals, most notably the ring-necked pheasant. Although at one time annual pheasant harvests topped a million birds, pheasants had dwindled to the point that they sometimes couldn't find mates in breeding season.

Ringneck numbers plummeted through the '80s, and annual harvests fell correspondingly. In 1980, natural reproduction and the stocking of roughly 280,000 birds led to a harvest of more than 900,000 pheasants. In 1982, despite the Game Commission's release of more than 425,000 pheasants, the ringneck harvest dropped to 785,000. Three years later, hunters took only about half a million birds, even though the agency had stocked more than 231,000.

In 1983, the Game Commission tried to improve the quality and hardiness of game farm pheasants. Experts hoped the "hardy bird" program would produce a bird more likely to survive and reproduce in the wild.

"We shall pursue a quality ringneck until we succeed or are convinced, absolutely, that it can't be produced," said Peter S. Duncan, who succeeded Glenn Bowers as Game Commission executive director in 1983. Duncan, a Hollidaysburg native, had served as head of DER, and he was also a former executive director of the Joint Legislative Air and Water Pollution Control and Conser-



Ringneck harvests continued to plummet as farmland habitat degraded or was lost. Game farms improved rearing conditions in hopes of producing a bird more likely to survive and reproduce in the wild.

vation Committee, which was charged with monitoring the disbursement of Project 500 monies.

The agency first made dramatic cuts in the number of pheasants being reared on game farms, which resulted in less crowded and healthier conditions. Employees charged with selecting breeder birds looked for wild characteristics. Game farm workers stopped using wing brails, which inhibit flight, and they reduced contact with the birds. They built new enclosures, complete with natural cover and food sources, that more closely resembled the habitats into which the birds would be released. In later years, roosting structures and automatic watering devices were added to rearing facilities.

It wasn't long before hunters said they noticed a change in the birds. The pheasants acted warier, and when hunters killed cockbirds they saw the birds had fuller plumage, including the long tails for which wild birds were noted and which the stocked birds formerly lacked.

Pheasants weren't the only birds affected by habitat loss and degradation. Following the boom of the 1970s and early '80s, waterfowl production was struck a hard blow by a drought across the so-called Prairie Pothole regions of the United States and Canada, prime breeding grounds for many North American waterfowl species. While Game Commission biologists believed only about 10 percent of the waterfowl that migrated through the state came from there, they had little data to support the theory. Pennsylvania — along with other Atlantic Flyway states — had to cut back its seasons and bag limits until habitat conditions improved.

Natural resource managers had long recognized the need to save wetlands from human development. As far back as the late '50s, conservationists figured that at least 12.5 million acres of wetlands had to be safeguarded to maintain North America's existing waterfowl populations. That figure was double the amount of wetlands acreage being protected at the time. Unfortunately, by the early 1980s development and agriculture had claimed more than half of the estimated 221 million acres that had existed in the Lower 48 states before the first settlers arrived in America. Pennsylvania was no exception, and less than half of its original 1.1 million wetland acres remained.

To bolster the amount of federal funding available to acquire wetlands and other key waterfowl areas, the U.S. Department of the Interior increased the price of migratory bird hunting stamps, "duck stamps," five times from 1973 to 1991. Ninety-eight cents of every dollar went toward buying or improving waterfowl habitat, and, despite price hikes, hunters and other wildlife enthusiasts (plus stamp collectors) bought 1.7 to 2.2 million stamps each year.

The state's wetlands, which by the late 1970s were found mostly in northeastern and northwestern counties, got a boost when Governor Milton J. Shapp signed the Dam Safety and Encroachments Act in 1978. The act declared no "important wetland" could be encroached upon unless the project's public benefits outweighed damage to the resource. "Important" wetlands included those that provided wildlife habitat, recharged groundwater supplies, stored water that prevented flooding, or served as nature study sites. Prior to the act, wetlands received no special considerations unless they harbored endangered or threatened species.

More help came in 1986 when the United States and Canada signed the North American Waterfowl Management Plan to acquire, create, protect and enhance wetlands. Its aim was to restore the population levels of 32 species of ducks, geese and swans to pre-drought levels. (Mexico joined the international effort in 1988, and became a full-fledged partner in 1994.) The plan called for the preservation, restoration or creation of five million acres of continental wetlands in critical regions by the year 2000.

In Pennsylvania, 88,000 wetland and associated upland acres were targeted for protection, and an additional 70,000 acres were slated for enhancement. In addition, the state expected to create 12,000 more wetland acres.

One of the biggest problems associated with protecting wetlands was defining them. The federal government drafted in the late '80s a procedure that used vegetative cover, soils and hydrological conditions to delineate wetland habitats. The Game Commission and other state environmental and wildlife conservation agencies adopted the standard, one of the most important steps ever taken to safeguard wetlands.

The Game Commission also started a voluntary Waterfowl Management Stamp program in 1983 to secure additional funding for

wetlands acquisition. In its first year, the program raised more than \$270,000 through royalties on fine-art print and stamp sales. By the early 1990s, the program had financed the purchase of more than 5,000 acres.

In 1985, the Game Commission began working with the conservation group Ducks Unlimited (DU) and its Matching Aid to Restore States' Habitat (MARSH) program. The agency used MARSH funds to offset the cost of an aquatic vegetation cutter, which is used to open vegetation-choked waters. DU provided more than a third of the \$141,000 price tag. In its first 10 years, the MARSH program contributed close to half a million dollars toward Game Commission wetland enhancements, and toward acquisitions of properties such as Benson's Swamp (Warren County), and Silkman's Swamp (Wayne County).

Recognizing the benefits of teaming up with outside organizations, the Game Commission allied itself with a number of conservation groups or philanthropies for help with its nongame programs. One example of the evolving partnerships between governmental agencies and private wildlife interests was the commission's bald eagle hacking project, which brought the bird back from the brink of extirpation. The agency began the effort in 1983 when several employees flew to Saskatchewan, home at the time to about 1,500 pairs of nesting eagles. The men took 12 seven-week-old eaglets from their Churchill River Valley nests and hacked them from towers on the Susquehanna River's Haldeman Island in Dauphin County and at Shohola Lake in Pike County.

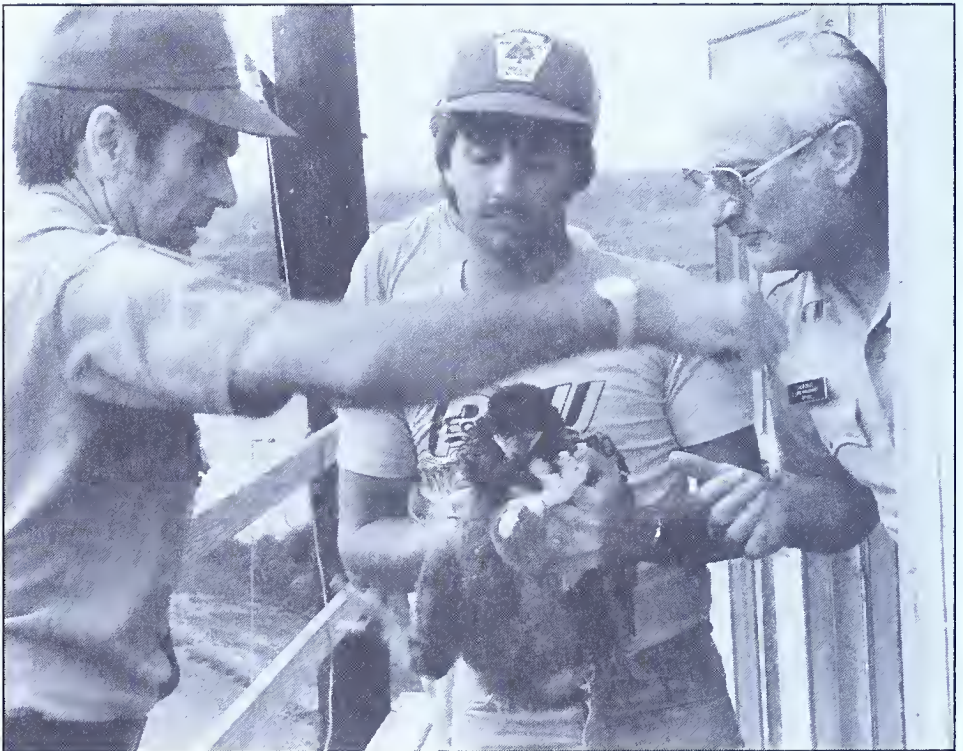
First-year program costs totaled about \$50,000, much of which was provided by the federal Endangered Species Fund. But in the second year, the Richard King Mellon Foundation of Pittsburgh awarded a \$108,000 grant to help underwrite expenses. The foundation tendered a second grant for the same amount three years later.

During the seven-year program, headed by Bureau of Land Management Director Jake Sitlinger, agency personnel brought 91 Saskatchewan eaglets to Pennsylvania. The young birds were placed in hacking tower enclosures containing makeshift nests for six to eight

weeks. They were observed through one-way glass and fed without any human contact. (In the first project, Haldeman Island hack site attendants provided six birds about 440 pounds of fish and meat.) The birds were released at 12 to 14 weeks of age.

Eighty-eight of those 91 birds were successfully released. In 1988, an eagle nest was found in Tioga County's Grand Canyon, a nest believed to be the first established in the eastern half of Pennsylvania in decades. A year later, five eaglets fledged from eight Pennsylvania nests — the makers of which were either hacked by the commission or by conservation agencies in nearby states. Nests were discovered in Dauphin, Lancaster and York counties in 1989.

The eagle program mirrored the success experienced by an osprey reintroduction program begun several years earlier. The osprey project, headed by Dr. Larry Rymon of East Stroudsburg University, started with six ospreys that were hacked from two towers in the Poconos. The



Under the bald eagle recovery program, headed by Jake Sitlinger (left), eaglets were transported from Saskatchewan to two “hacking” sites in Pennsylvania. Eighty-eight of the birds were successfully released, preserving the bald eagle’s presence in the state.

first Pennsylvania-hacked osprey returned in '83, and two years later the state documented its first nesting pair since 1910. By the late '80s, more than 100 ospreys had been hacked in northeastern Pennsylvania, and ospreys nested in the state each year.

Nongame and "species of special concern" (rare, threatened, endangered or those of unknown status) also benefited from the creation of the Wild Resource Conservation Fund (WRCF) in 1982. Governor Richard L. Thornburgh signed a law creating a "state income tax refund check-off" that taxpayers could use to assign part or all of their refund to WRCF. WRCF's board included representatives from the Game Commission, Pennsylvania Fish Commission, DER, and natural resource committees in both houses of the state legislature. In its first year, the check-off generated \$224,591 for nongame species projects. For the first 10 years, annual contributions to WRCF ranged from \$350,000 to \$400,000; the money financed or helped fund more than 200 research, educational and resource management projects.

The year after WRCF was created, the Game Commission developed its Working Together for Wildlife Program. The agency sold patches and fine-art prints to benefit nongame wildlife, and the program raised more than \$1 million in its first 10 years.

The Pennsylvania Fish and Wildlife Database, created in 1982, was an important step in monitoring the health of nongame species. The database is a computerized library of information on birds, mammals, reptiles, amphibians, fish, mollusks, crustaceans and invertebrates. It details their ranges, population sizes, life histories, and their reactions to land-use changes. It serves as a clearinghouse of information for people who must determine impacts that human activities might have on wild animals — particularly "species of special concern." In its first 10 years, the database handled about 2,000 requests from environmental consultants and engineers, developers, Game Commission biologists and land managers, and many others.

The Game Commission began keeping a close eye on furbearer populations when, following a big jump in fur prices and an accompanying rise in the number of people trapping, it appeared that overharvest could become a problem. Even though the threat dissipated when

fur prices fell in 1981, the agency still worked to improve its knowledge of the state's furbearers.

The commission implemented a scent post survey in 1979 to plot the presence and population trends of various furbearing species. In the years following the scent post survey's inception, researchers learned that the raccoon population was fairly stable, and that Pennsylvania's eastern coyote population was growing. Both red and gray foxes showed a mysterious drop in 1982 (harvest was ruled out as a cause) before starting a slow five-year recovery. Furbearer research also got a boost when trapping and furbearer harvest questions were added to the Game-Take Survey.

Game-Take statistics showed the number of raccoon trappers and hunters had dropped 62 percent (to about 35,000) between 1981 and 1985. That decline — some of which was attributed to the 1985 creation of a furtaker's license as well as falling fur prices — corresponded with a rise in rabies cases. From 14 rabies cases in 1981, primarily involving raccoons, the figure jumped to 160 by 1983 and nearly 600 by '86. The rabies outbreak, the state's largest since the early 1950s, prompted the commission to lift closed-season protection for furbearers in areas where the disease was particularly widespread. Field officers and biologists were inoculated against the disease, and the agency circulated handouts warning residents to beware of animals that acted strangely.

In this latest rabies outbreak, the agency depended on education, not poison, to solve the problem. Teaching the public, particularly nonhunters, about wildlife became a regular part of the commission's efforts beginning in the 1980s. The Game Commission actively participated in the Envirothon, a student environmental awareness competition that originated in Pennsylvania in 1979 and soon expanded to other states and Canada's provinces. Three years later, the agency became an associate state sponsor of Project WILD, an environmental education program for teachers. In the first 12 years of its involvement, the agency reached more than 10,000 educators through program workshops.

By the late '80s the agency was spending about \$100,000 each year to develop, print and mail wildlife education materials to schools.

"The children who will benefit from this service are Pennsylvania's

tomorrow and represent our future natural resource caretakers,” said Lantz A. Hoffman, who directed the agency’s Bureau of Information & Education beginning in the ’80s. “It’s important they know what’s out there and understand how priceless wildlife and other natural resources are.”

The commission also began hunter education camps that gave youths advanced training in hunter safety, environmental awareness and other subjects. The Hunter-Trapper Education program became mandatory for all first-time hunters, regardless of age, in 1982. One year later it reached a milestone of one million certified students. In 1986, the course expanded to 10 hours in length.

The increased focus on hunter training, along with laws mandating safety colors, began to cause a decline in hunting accidents. The average number of hunting accidents per year in the ’80s was 151, less



By 1983, the Game Commission hunter education program had trained one million students. That milestone was commemorated in a 1984 ceremony with 12-year-old Jon Odenwelder, Governor Richard Thornburgh and Hunter-Trapper Education chief Jim Filkosky.

than half what it was the previous decade. The accident rate was 15 per 100,000 hunters; by the early '90s, it would drop to seven.

Game law prosecution totals hit record highs in the early 1980s. There were 11,615 prosecutions in 1981 and 15,793 the following year, continuing a 25-year climb. Several studies had concluded that general criminal activity increased nationwide during this period, but it seemed unlikely that the amount of wildlife crimes being committed in Pennsylvania could have tripled from the 1957 prosecution total, which was just over 4,400.

The rise in prosecutions was more due to the increasing efficiency of the commission's law enforcement program, which became the center of renewed attention in the early 1980s.

"Law enforcement is the keystone that provides the support necessary to make any other part of the wildlife program successful," wrote law enforcement chief Gerald Kirkpatrick in 1982. "Laws are obeyed if they are popular and the need for them is understood. Laws are also obeyed if there is fear of being apprehended, prosecuted and of the punishment provided."

Of all the changes the agency pushed during this period, none was more significant than efforts to revamp the game laws, which hadn't received a comprehensive update since 1937. Fines for serious crimes were paltry by modern standards, and the language of the law itself was ambiguous and archaic. Game Commission law enforcement officials rewrote the game law and forwarded it to the House of Representatives in the early '80s. The House Game and Fisheries Committee conducted several hearings to collect testimony and solicit improvements to the proposed legislation, and a committee-forged revision of the Game Commission's draft surfaced in mid-1985.

"The document . . . represents the first time since 1937 that any substantial effort has been made to streamline and modernize Pennsylvania's outdated wildlife statutes," Executive Director Peter Duncan told the committee. "We are pleased the proposed codification provides more realistic penalties, consistent with today's economy and sense of justice. We are also pleased to note the proposed codification provides effective deterrents against poaching and com-

mercial exploitation of wildlife, known to be widespread and growing in recent years.”

The game law packet was passed by both state houses and was signed by Governor Thornburgh on July 8, 1986. The newly named Game and Wildlife Code, which went into effect July 1, 1987, increased hunting license fees; created a senior resident lifetime hunting license; established substantially higher penalties for wildlife violations; and changed the title of “district game protector” to “wildlife conservation officer.” The code and revised regulations also authorized officers to post baited areas against hunting for 30 days; moved the end of legal spotlighting time to 11 p.m.; required big game hunters to wear 250 square inches of fluorescent orange clothing; classified wild turkeys as big game; and made it illegal to prop a loaded firearm against a vehicle.

While efforts to change the game laws were underway, the Game Commission updated other aspects of its law enforcement program. The agency completed work on a new, computerized listing of its arrest records in 1983 that gave officers in the field quick information on suspects.

New four-wheel-drive vehicles provided many game protectors a better means to pursue lawbreakers. Shotguns became part of the basic issue, and so did stainless steel .357 Magnum revolvers, which were easier to care for than their blued steel predecessors. Wildlife conservation officers (WCOs) were also permitted to use a side-handled baton and Cayenne pepper aerosol spray, and they adopted a more effective tranquilizer gun to deal with wildlife that had to be drugged for capture and relocation. Spotting scopes, cameras, video cameras and portable radios were also added to WCOs’ gear over the years.

Beginning in the 1980s, officers had to deal more and more with the illegal, commercial wildlife trade. Uniformed and undercover conservation officers from Pennsylvania cooperated with other state and federal wildlife personnel to catch people dealing in commodities such as black bear gall bladders, mounted specimens of endangered species and other protected wildlife, and illegal venison products.

“A marked increase in the known incidence of commercial wildlife crime throughout the world has been recorded during the last several years,” reported Clark R. Bavin of the USFWS in 1985. “The prices

people are willing to pay for wildlife are astonishing. With the increase in profits, more money and resources are available to the criminal.”

One joint federal and state undercover investigation of illegal marketing of fish and wildlife in the northeastern United States came to an end in January 1985 after more than two years of work. During the investigation, undercover officers — including several from the Game Commission — purchased more than 275 deer and 1,800 pounds of venison in Pennsylvania. Officers also uncovered a thriving illegal market in the state for songbirds, game birds and raptors, which were sold for food, taxidermy specimens and plumage. More than 125 people were charged in connection with the case.

Much as wildlife management and law enforcement benefited from new technology, so too did land management. New machines could quickly perform tasks that had historically taken a lot of people and a great deal of time. The first upland vegetation cutter, an attachment for a log skidder, was a 1985 gift from the Pennsylvania Grouse Association and Ruffed Grouse Society. The device was quickly put to work removing poor quality, small-diameter trees and shrubs — scrub oak and multiflora rose, for example — to improve wildlife food and cover conditions on game lands. It was also used to reopen roads and trails. The agency bought two more upland vegetation cutters over the next several years.

The agency added a log skidder modified for fern spraying (fern cover impedes forest regeneration) to its habitat manipulation arsenal. Specialized grain drills, several of which were donated to the commission, provided a faster and more efficient means of planting warm-season grasses over large areas.

But even with the help of modern technology, it became increasingly difficult for the Game Commission to improve and maintain habitat on the more than one million acres it owned (more than 130,000 acres were added from 1980 to 1993 alone). The size of the commission’s Food & Cover Corps could not keep up with the agency’s growing land base.

The agency got some help in 1984 with the formation of the Pennsylvania Conservation Corps (PCC). PCC provided work for

young people, work designed to improve public facilities and natural resources. PCC crews planted thousands of tree seedlings and improved thousands of acres of habitat. They assembled countless wildlife nesting boxes, and helped agency field staff build and renovate a number of game lands buildings. The value of commission work the crews performed over PCC's first 10 years exceeded \$2.1 million.

Many of the seedlings planted by agency personnel and by cooperating groups were provided by the agency's Howard Nursery. By the 1980s, Howard Nursery was annually producing between three million and five million seedlings of some 40 species suited to the state's various climatic and soil conditions. The seedlings were planted on game lands, sold to the public under the agency's Planting for Wildlife program, and given to public access cooperators as gifts of appreciation. The nursery also made wooden signs, along with a variety of nesting devices for birds and bats.

In 1985, the Game Commission received more help when it entered into an agreement with the Pennsylvania National Guard. Under the



The agency's Food & Cover Corps, which performs labor-intensive tasks such as building brushpiles on game lands, was becoming responsible for more and more land. Modern machinery helped ease the burden, as did agreements with organizations like the Pennsylvania Conservation Corps.

arrangement, the militia was permitted to train on certain game lands in return for equipment, manpower and expertise to assist with such projects as road repair, bridge construction and habitat work requiring large machinery.

In spite of manpower shortages, the Game Commission expanded forestry operations because a large part of its habitat management strategy was accomplished by selling timbering rights to private contractors. A growing timber market brought more companies to the bidding table, which in turn ensured a good return on the lumber. Agency timber sales increased as stands on many game lands reached marketable size, and also because "salvage cuts" had to be performed in areas of the state where trees had been killed by gypsy moth infestations.

During the 1980s, the agency sold 272 million board feet of timber and 1.6 million tons of pulpwood. Both figures represented substantial increases from the rates posted in the '70s, when the commission sold 93 million board feet of timber and 335,869 tons of pulpwood. Timbering in the '80s brought the agency nearly \$40 million.

The Bureau of Land Management recognized a milestone of providing places to hunt when it celebrated the first 50 years of the Cooperative Farm-Game program in 1986. The public access program encouraged landowners to allow public hunting and trapping on their properties. In exchange, landholders received increased game law enforcement patrols, game bird stockings and land enhancements that benefited farmland wildlife. The program fostered good relationships between farmers, hunters and the agency.

Farm-Game, which began on 10 Chester County farms comprising 1,507 acres, had grown in half a century to more than 20,000 farms encompassing 2.4 million acres in 58 counties.

As the Game Commission neared its centennial, it stood as a trailblazer in the area of land acquisition. The agency had provided millions of acres of land for the commonwealth's hunters through cooperative access programs such as Farm-Game, Safety Zone (a program similar to Farm-Game in which people who owned as little as 80 acres could enroll) and Forest Game. That was in addition to the more than one million acres the commission had purchased with sportsmen's money. The agency saw land acquisition as one of its most

important goals because habitat, both for wildlife and the people who enjoyed it, was becoming scarcer and more precious with each passing year. And as the land available to wild creatures continued to shrink, it made the agency's task of managing wildlife all the more complex — and vital.

12



A Future for Wildlife

IT DIDN'T SEEM TO MATTER to the deer that Pennsylvania's wild habitat was disappearing or becoming increasingly fragmented by human progress. Each year the herd grew larger, as indicated by buck harvests. But in the first three years of the "bonus" program, under which hunters could take more than one deer by buying unsold antlerless licenses, hunters killed a total of more than a million whitetails.

Those big harvests finally slowed herd growth to a more manageable pace, but the state's whitetail management problem remained: Deer densities were above their habitat-based goals in a majority of counties. Some of the blame could be placed on a lack of hunter access and occasional bad weather during hunting seasons of the late 1980s and early '90s. Political pressure applied by hunters and others who didn't want the herd cut also contributed.

In the spring of 1991, following the third season of the bonus program, hunters began clamoring for the closure of antlerless season in some counties and an end to the bonus system altogether. The Game Commission listened to sportsmen's concerns but stood firm on its management plan. The agency allocated a record 847,200 antlerless

licenses for the 1991-92 deer seasons.

While many hunters condemned the large allocation, sportsmen nevertheless bought all the available “doe tags” in every county but Philadelphia. The total deer harvest topped 388,000, and the following year, despite deep snow that kept many people out of the woods, the harvest was more than 360,000. In 1993, under more normal conditions, hunters killed more than 408,000 deer — proving that the state wasn’t suffering a deer shortage.

In 1991, the agency unveiled several hunting and licensing options to increase recreation, including opening buck and antlerless seasons on Saturdays instead of Mondays, providing a harvest tag with every antlerless license, and allowing Sunday deer hunting. Other possibilities were a longer antlerless season, a longer fall archery season, smaller deer management units and either-sex hunting days in rifle season.

The agency held public meetings in each of its six regions and surveyed more than 5,600 hunters by mail. The commission also encouraged sportsmen to write in with their comments. Seventy-three percent of those surveyed returned the questionnaire — a high response rate for such surveys. Hundreds of people attended the meetings and wrote letters as well.

Sportsmen strongly supported three major changes that were incorporated into the deer plan. A harvest tag was included with every license, meaning successful buck hunters would no longer have to give up the chance to shoot antlerless deer. Archers were required to purchase antlerless licenses for the first time, which allowed them to kill an antlerless deer and then take a buck during the archery or rifle seasons. And bowhunting season was also extended beyond its historic four weeks, first to five weeks and later to six.

The agency considered the mail survey a rousing success because it quantified for the first time the public’s perceptions of the commission. Sixty-one percent of survey respondents said they believed the Game Commission was doing a good job managing deer; 27 percent gave the agency a fair rating, and 12 percent rated its performance as poor. The survey documented what many in the agency had suspected all along: Most hunters supported the deer management program.

One of the biggest concerns the commission tried to address was the destruction whitetails were causing on farms and in suburbia. In

January 1991, the agency instituted a Deer Damage Area program to alleviate crop damage. It established special seasons for antlerless deer on enrolled agricultural lands, and in its trial run, hunters with appropriate licenses could shoot antlerless deer on these lands during a two-week season in late January. More than 600 farms took part that first year, and hunters killed nearly 1,100 deer. The next year, the harvest went up to 1,550. In subsequent years, the program was modified to permit the taking of antlerless deer in buck season.

The agency also began devising a “metro deer” management plan to combat the increasing conflicts between deer and people in areas of high human density. The commission’s first move was to reduce its deer population goals for all metropolitan and heavily suburban counties. The agency then increased antlerless license allocations in those areas to cut the herd. But the lack of hunter access made it hard to reach deer population goals through hunting.

The plan also focused on municipal deer control, a cooperative effort between the Game Commission and various political subdivisions. Communities that wished to take part first had to examine the



The Game Commission continued to work toward bringing the deer herd in line with habitat-based density goals. The agency expanded antlerless deer hunting, its most efficient management tool.

factors contributing to their deer problem: posting against hunting that created deer refuges; landscaping practices that improved habitat for deer; roadway planning that increased the incidence of deer/vehicle collisions; and the feeding of the deer by residents. Once municipalities had developed and implemented a management plan that addressed these and other problems, the agency could issue permits to kill deer outside the regular hunting seasons.

The Game Commission completed its research on habitat-based deer carrying capacities in the '80s, and the findings prompted the agency to change the formula it used for assigning deer densities to forest classes. The research determined that a square mile of seedling/sapling timber can, and should, support 60 deer — not 40. For pole timber, the figure dropped from 10 deer per square mile to five. The saw timber density objective remained unchanged at 20 deer.

But it wasn't until 1993 that the agency included these findings into its deer management goals. The commission had been waiting for the U.S. Forest Service's latest woodland inventory, which is conducted every 10 years. The service had determined as of 1989 that about 58 percent of Pennsylvania's land base was forested. The forest was composed of 57 percent saw timber, 29 percent pole timber and 14 percent seedling/sapling.

The seedling/sapling component, the best deer habitat, had declined 28 percent over the previous survey. Saw timber increased by about the same percentage. Pole timber, the worst habitat for deer, changed little.

These shifts in forest composition didn't affect the commission's statewide management goal for the overwintering deer population, which was 21 deer per forested square mile or about half a million deer. But the loss of seedling/sapling and gain in saw timber did alter the goals for a few counties. Density goals in counties such as Crawford, Luzerne and Union dropped 30 to 40 percent. In Potter, Westmoreland and Wyoming counties, the goals increased 20 to 30 percent.

Even as the agency wrestled with the deer problem, it recognized the successes it had achieved in black bear management. By 1990, the Game Commission estimated the state's bear population at about 7,500 bears, roughly triple the number found in the mid-1970s.

"With an increase of this magnitude, one might expect a reduction

in the rate of growth and reproduction as the bear population approaches its biological carrying capacity,” biologist Gary Alt wrote in 1990. “However, even at this seemingly high population density, Pennsylvania black bears are growing more rapidly than any other black bears studied in North America, and are reproducing at a higher rate than any studied population of bears, of any species, anywhere in the world.” That, Alt said, meant the state’s habitat could support even more bears, perhaps several times more.

From 1983 to 1993, hunters killed record numbers of bears. During that period, the state documented its 11 largest bear harvests, with hunters taking an average of 1,557 bears per year. By contrast, the average annual harvest from the 1920s to the early 1980s was only 440.

The agency decided to stabilize the bear population at a level that provided hunting and wildlife watching opportunities, while at the same time limiting bear damage problems. Biologists figured hunters would have to kill 1,500 to 1,600 bears each year to keep the population where it was.

As the bear population rose, hunters began asking for additional recreation. The commission drafted six bear management options and put them out for public comment, once again by soliciting letters and by holding public meetings. Of the six options, which ranged from dividing the state into bear management units to incorporating bowhunting-only seasons, one kept the bear season just the way it was. It was the option that received the most support.

“At the bear management hearings, many people satisfied with the present system testified that they didn’t want any changes, often stating, ‘If it isn’t broke, why fix it?’ ” Alt said. “But it’s not a matter of being broke — it’s a matter of taking a good system and making it better. . . . Modifications and improvements are inevitable.”

Based on what agency officials heard at the meetings and read in letters, they made no changes. But the commission continued its educational efforts regarding black bears, recognizing a thirst for knowledge among the public. It produced a video, “On the Trail of Pennsylvania’s Black Bears,” that contained an exhaustive look at the animal’s natural history. The work became an instant hit.

Although its population didn’t triple like the bear’s had, Pennsylvania’s elk herd did experience a growth spurt. Elk numbers

remained about 120 to 150 through the 1980s; annual reproduction was offset by mortality, which included elk killed by poachers, shot by farmers for crop damage, struck by vehicles, and stricken by brainworm. But in the '90s, the herd began to increase.

The habitat work performed by the Game Commission and the Department of Environmental Resources (DER) was successful in improving natural food conditions. With more food in the forest — and deterrent fencing to keep elk out of agricultural fields — elk came into contact with people less often, reducing some human-caused mortality.

By 1992, the herd's size was estimated to be 205, and in 1993 it grew to 224. It's possible that some of the increase can be attributed to more efficient survey methods. Beginning in 1992, the survey was performed completely from the air. The aerial survey developed a new model for estimating populations. It employed radio telemetry and cut the number of people required to run the survey from 60 to fewer than 20.

In another example of the increasing cooperation between the Game Commission and private organizations, the Rocky Mountain Elk Foundation (RMEF) contributed \$38,000 toward the 1990 purchase of State Game Lands 311, which was at the time a 1,600-acre tract in the Winslow Hill area of Elk County.

Over the next two years, RMEF contributed an additional \$92,000 toward elk management, the money going to habitat enhance-



The state's elk herd topped 200 animals by the early 1990s. The commission teamed with other state agencies and private groups to improve management of the herd.

ment and the installation of deterrent fencing. More than 70,000 feet of six-strand electric fence were placed around fields and pastures on five different properties, lands where elk conflicts had regularly been resolved with a gun.

Another forest game success story during the mid-1980s and early 1990s involved the wild turkey. Trap-and-transfer operations, chiefly responsible for the self-sustaining populations that had returned to the state, ceased in 1984 when the birds had been restored to most areas that held suitable habitat. The same year, the Game Commission carved the state into nine turkey management zones. Fall hunting was curtailed or closed in southeastern and southwestern areas, where populations were sparse or nonexistent. As a result, wild turkeys began to expand into new areas in the western part of the state — to the point that farmers eventually began to complain of crop damage problems caused by turkeys.

The state's turkey population in the early '90s was estimated at 200,000 birds, double what it had been 30 years before. Turkey hunter numbers climbed correspondingly. Annual harvests of 50,000 to 60,000 had become common, but along with the increasing number of turkeys and turkey hunters came a rash of mistake-for-game hunting accidents. From 1983 to 1989, there were about 25 turkey hunting accidents per year. But in 1990 the number jumped to 46. The following year, despite a vigorous educational campaign focusing on safe hunting techniques and accident awareness, 53 turkey hunters were shot — three fatally.

The Game Commission responded by mandating the use of fluorescent orange clothing for nearly all fall hunting, and for spring gobbler hunting. Most fall hunters were now required to wear 250 square inches of fluorescent orange on the head, chest and back. Spring gobbler hunters had to wear 100 square inches while moving through the woods, and the agency strongly advised them to display or wear orange at their calling locations.

The action brought a tide of criticism, even legislation challenging the agency's authority to set such regulations. But the results that came back in 1992 were convincing: Only 14 hunters were shot while turkey

hunting, and not one turkey hunter was killed. The following year, there were only 11 accidents, and again there were no fatalities.

While forest game management was enjoying its fair share of successes, other wildlife species weren't faring quite so well. The American woodcock, long a favorite of upland wingshooters, had been declining steadily across the eastern United States for more than two decades. Woodcock require a fairly specific set of habitat conditions — young aspen stands, reverting fields, wetland areas and so forth — that yield an abundance of earthworms. Good woodcock cover disappears due to the effects of forest succession, and many eastern environs had matured past the point that they would support the woodcock.

In light of rapidly dwindling populations, the Game Commission in 1992 drastically cut back on woodcock hunting. Although the U.S. Fish & Wildlife Service (USFWS) permitted many eastern states to hunt woodcock for up to 45 days, Pennsylvania limited its season to 12 days in order to reduce pressure on the state's resident birds. But in 1994, Lincoln Lang and other biologists recorded the lowest index of breeding woodcock ever to occur in the state.

Pennsylvania's wild ring-necked pheasant population was suffering a similar fate. It had nearly bottomed out as the majority of the state's once-prime pheasant range became inhospitable to the ringneck and other grassland nesting birds. In 1991, hunters took 270,000 pheasants — just 33,000 more than what the Game Commission had released. Even considering that in the preceding 10 or so years the number of pheasant hunters had dropped by about two-thirds, it was obvious to biologists that natural pheasant reproduction had all but disappeared.

The commission's "hardy bird" program, which had changed game farm rearing practices to produce a bird more likely to survive and reproduce in the wild, did not seem to be living up to expectations. In 1987, the agency began experimenting with the Sichuan pheasant in hopes that a bird with different genetics might be able to flourish in the face of modern farming practices and dwindling habitat. Some reports indicated that the Sichuan pheasant would nest in woody cover and therefore not be as prone to nest destruction from hay mowing. The agency brought in 40 Sichuan pheasant cocks from Michigan, and

because Sichuan hens were not available, the cockbirds were bred with wild-trapped ringneck hens.

The resulting hybrids were released in western Mercer County and on Franklin County's Letterkenny Army Depot. Hunting was not permitted in the release areas until the early '90s; limited telemetry studies showed the hybrids seemed to prefer nesting outside actively farmed areas. The hybrids at Letterkenny declined, but the Mercer County population increased for several years before leveling off. When the hybrids were released in Mercer County in 1987 it was estimated there was one pheasant per square mile on the study area. By the early '90s, the number had risen to eight.

After acquiring 75 Sichuan hens and 25 cocks from Michigan in late 1990, the Game Commission began to propagate purebred Sichuans. By 1993, it had produced enough birds to launch a pheasant restoration study, which involved both Sichuan pheasants and ring-necked pheasants raised under the "hardy bird" program. Conservation officers, land managers and biologists around the state examined habitat to come up with six sites suitable for the project.



The Game Commission began a pheasant restoration project in 1993 to determine whether self-sustaining pheasant populations could be established. The project evaluated both ring-necked pheasants raised under the "hardy bird" program and Sichuan pheasants.

Three areas were stocked with Sichuans, three with ringnecks. The study was designed to see which pheasant — if any — could establish self-sustaining populations. The study areas, each of which comprised at least 25,000 acres, were closed to hunting for several years in order to eliminate the effects of harvest on the test populations. Using radio telemetry and extensive field data collection, the researchers also gathered information on pheasant habitat preferences, home range size, reproduction and mortality.

Because habitat loss and degradation were recognized as the major culprits in the decline of grassland nesting birds, the Game Commission began working with native warm-season grasses to improve habitat conditions. Warm-season grasses such as switchgrass, which are native to the state, seemed an attractive alternative to the cool-season plants introduced by early farmers. Warm-season grasses grow better in summer, and do not require early cutting. The May or early June cuttings necessary with cool-season grasses cause widespread destruction of grassland bird nests and young.

Several other agencies and groups got behind the effort to encourage landowners to switch to warm-season grasses. Ducks Unlimited purchased three heavy-duty grain drills for the Game Commission and the USFWS to use in warm-season grass planting; Pheasants Forever bought a fourth.

Another joint program between state and federal agencies, conservation groups, and private landowners to improve habitat was the Partners for Wildlife program initiated by USFWS. Begun in 1987, Partners was a cooperative venture with private landowners to restore wetlands that had been drained for agricultural use. The Game Commission provided manpower and equipment to build dikes, potholes and other impoundments to hold the water that tiles and drains had once removed from the land. Side by side with property owners (priority was given to those enrolled in the agency's cooperative land access programs), the Game Commission, USFWS, Soil Conservation Service, county conservation districts and outdoor groups completed the first project in 1989.

By mid-1994, 1,000 acres of wetlands had been restored in the state,

providing critical habitat for a variety of wildlife.

“This is an excellent example of what can be accomplished for the wildlife resource when government and people work together,” PGC Bureau of Land Management Director Greg Grabowicz said following a ceremony commemorating the 1,000th acre. “But it would be nothing without the interest and efforts of the private landowners, who control land we wouldn’t otherwise be able to influence.”

The Game Commission was also actively involved in the Streambank Fencing program, an attempt to reduce the amount of nutrients and sediment pouring into the troubled Chesapeake Bay from Pennsylvania. The program provided labor, equipment and materials to fence livestock out of streams. The fencing offered several benefits. One, it prevented livestock from depositing nutrients directly into the stream through urine and feces. Two, once livestock was kept away from streambanks, the banks grew up in vegetation almost immediately. The vegetation acted as a buffer to keep nutrients from washing into streams from nearby agricultural fields, and it also shored up banks against the erosion that dumped tons of sediment into the watershed each year.

The grown-up streambanks quickly improved water quality, and they also provided streamside food, cover and travel corridors for wildlife — in addition to improving the health of farmers’ stock. The commission’s partners in the streambank effort included DER, the federal Environmental Protection Agency and Soil Conservation Service, and Penn State’s Cooperative Extension. In 1993, a small crowd gathered on a Lancaster County farm to recognize a milestone. One hundred miles of streambank had been fenced on 300 farms in the Susquehanna River watershed.

Through the 1980s and into the ’90s, the commission pursued an ambitious land acquisition program. As Executive Director Peter Duncan saw it, the “window of opportunity” to purchase land for the state’s sportsmen was rapidly closing. He believed land would become increasingly hard to get as the needs of a growing population swallowed up more of the state’s wild habitat and drove up prices. Complicating matters was the per-acre price the agency was allowed

to pay for land, which had risen from \$10 per acre in the early 1920s to \$400 per acre in 1994. (Exceptions were made for buying interior holdings and some adjoining properties to add to existing game lands.) That made land in areas such as the Poconos, which by the early 1990s was considered part of the greater New York Metropolitan Area according to U.S. census data, nearly impossible to obtain.

Fortunately for the Game Commission, it was able to enlist the help of a variety of land preservation or conservation organizations such as Western Pennsylvania Conservancy, Wildlands Conservancy, Seneca Highlands Conservancy, Nature Conservancy, French and Pickering Creek Land Conservation Trust, Northern Allegheny Conservation Association, Trust For Public Lands, National Fish and Wildlife Foundation, Ducks Unlimited, Waterfowl USA, Rocky Mountain Elk Foundation and National Wild Turkey Federation.

The land conservancies often purchased land the agency could not buy, either because of the per-acre price ceiling or budgetary constraints. The conservancies — which are funded through private donations — would then sell the land to the commission for a price it could afford, paying the difference between the agency's ceiling limit and the actual per-acre cost. In other cases, conservancies would hold the land until the Game Commission was able to include the funds in its budget. The conservation organizations also contributed large sums of money to offset the costs of land acquisitions or bought land outright and donated it to the agency.

A significant amount of funding for game lands acquisition also came from federal programs designed to stimulate land preservation and wildlife conservation. By the early '90s, the Game Commission had purchased 47,000 acres to establish or add to 45 game lands across the state, courtesy of \$7.5 million provided by the U.S. Land and Water Conservation Act of 1964.

The Federal Aid in Wildlife Restoration Program was also an excellent source of funding. In Pittman-Robertson's first 57 years, the Game Commission bought more than 180,000 acres of state game lands through the program. The Game Commission paid out \$4.6 million for those purchases, about three-quarters of which was then reimbursed through Pittman-Robertson.

P-R funds were not limited to land purchases. By 1994, the Game

Commission had received a total of \$77.3 million for habitat and facilities improvements, land acquisition, wildlife research, forest inventories, hunter education and administration of public access programs.

Restoring habitat didn't always mean buying land, planting vegetation or cutting timber. Sometimes the agency was able to use wildlife itself to benefit the environment. The agency adopted a beaver management plan in 1990, as much an effort to increase the health of the state's wetlands as a tool to manage beaver populations. The state was divided into six furbearer management zones, and separate beaver trapping seasons and bag limits were set for each zone. The commission established population goals that would keep one-quarter to one-third of the state's beaver dams active, which would maximize wetland production while minimizing conflicts with landowners.

Beaver dams create important wetland habitats and are used by many species. But if left unchecked, beaver populations quickly grow beyond what the habitat can support, and once the large furbearers have stripped the area of vegetation, they abandon the dam. Abandoned dams are not as useful to wildlife as working dams, and harvesting beavers through trapping increases the chances that dams will be occupied for longer periods of time.

Another furbearer, the river otter, received management attention of a different kind — that of reintroduction. Once fairly common along the state's waterways, the otter had nearly vanished due to unregulated



Tom Serfass, squatting at left, prepares to release river otters as part of a river otter restoration project, which reintroduced the native mammal to several drainages across the state.

trapping and deteriorating water quality caused by mining, logging and industrial activity. By the time the agency closed otter trapping in 1952, only a remnant population in the Pocono region remained.

Restoration work began as early as 1982 when four otters (trapped in Pennsylvania and other states) were released into Potter County's Kettle Creek. Over the next five years, the project, headed by Penn State graduate student Tom Serfass, put 35 more otters into the Pine and Loyalsock creeks. By 1990, the restoration program — which was being funded by the Game Commission, the Wild Resource Conservation Fund and the Pennsylvania Trappers' Association — had moved to Forest County's Tionesta Creek in the Allegheny National Forest. Twenty river otters were released there to establish another population. The final otter stockings began in 1992 on the Youghiogheny River in Fayette County, but a year later they had to be postponed indefinitely when a blow-out of a deep mine near the Casselman River — a feeder to the Youghiogheny — polluted the watershed with mine acid.

Even as Serfass and his team reintroduced otters across the northern tier and southwestern corner of the state, natural dispersion from surrounding states was also helping the otter's return. Animals moved up both the Susquehanna and Delaware rivers as water quality improved. Otters had migrated up the Susquehanna watershed as far north as Mifflin County, and up some of the Delaware's tributaries as far west as Schuylkill County, by the mid-1990s.

Although the early stages of bald eagle and osprey reintroduction had proven successful, the Game Commission's early efforts at reestablishing peregrine falcons failed because of predation by great horned owls. In 1992, the agency tried a new tack. Peregrines had by this time established several nests on bridges in Philadelphia and on a building in downtown Pittsburgh. The birds were the result of Peregrine Fund-led reintroduction efforts: The falcons found on the Philly bridges had come from peregrines hacked in New Jersey; the Pittsburgh falcons had emigrated from Tennessee and Virginia.

Pennsylvania's plan was to remove eggs from Philadelphia nests and hatch them at another location. (The falcons from whose nests the

eggs were taken typically produced another clutch of eggs. Biologists usually took eggs from nests where hatchlings had historically experienced poor survival rates.) The fledglings would then be cared for by a captive female falcon for several weeks before being hacked from enclosures on city buildings.

Two falcons were successfully hacked from the Fulton Bank Building in downtown Harrisburg in 1992. A year later, the Game Commission picked up two new partners — the New Jersey Division of Fish, Game and Wildlife, and the William Penn Foundation — and successfully hacked eight birds from locations in Harrisburg, Reading, Williamsport and Trenton, New Jersey.

As the peregrine was regaining a foothold in the state, the Game Commission bald eagle and osprey recovery programs continued to bear fruit. From three bald eagle nests sites statewide in 1987, a dozen eaglets fledged from nine nests by 1991. One of the nests was on Haldeman Island, one of two hack sites used in the beginning of the program. Two years later, 15 eaglets fledged from 16 nests — including one at Shohola Lake, the other former hack site.

The state was home to 17 bald eagle nesting pairs by 1994, the same year the federal government “down-listed” the bald eagle from “endangered” to “threatened” in all but three southwestern states.

Ospreys were experiencing similar success. Hacking efforts for those birds had continued through the



Commission biologist Dan Brauning examines a young peregrine falcon at an inner-city hack site. The falcon had disappeared from Pennsylvania skies in the '60s, but captive rearing and hacking programs were successful in returning nesting populations.

early '90s at Tioga-Hammond Reservoir in northcentral Pennsylvania and at Butler County's Lake Arthur. In 1994, the state was home to a record 16 nesting osprey pairs, double the figure in '89.

While not exactly nongame, the coyote was considered a "protected mammal" that could be hunted year-round or trapped during a season the commission established in 1987. The coyote was classified as a "furbearer" in 1993, a more appropriate title for a wild canid that was being hunted and trapped for its pelt.

Although the coyote had probably been present in the state since as early as the 1930s, it didn't become noticed until the 1970s. At that time, there were perhaps only a few hundred of the animals in Pennsylvania. But by the early '90s the commission estimated there were as many as 15,000, based on research begun in the late 1980s. Some hunters saw a large coyote population as a threat and claimed the predator was harming game populations, namely deer and turkeys.

At one 1994 Game Commission public meeting, sportsmen demanded to know what the agency was going to do about the predator. Biologist Arnold Hayden, who had been conducting the coyote research, said it was impossible to do anything about the coyote, an animal that man had been trying to eradicate from the continent for more than a century.

"We don't manage the coyote. The coyote manages the coyote," Hayden said while explaining that coyote populations were self-regulating based on the availability of prey. Hayden argued that while the coyote does kill deer and other game, whitetail populations had steadily increased where high coyote populations existed. Similarly, turkey populations were at their highest levels in years, even in the face of rising coyote numbers.

One big management concern the agency faced didn't involve wildlife at all. Communications — information management — was the focus of several improvements designed to make the field force more efficient in policing hunters and apprehending those who broke game laws. One of the most significant changes in law enforcement operations was the agency's conversion in 1988 to a toll-free "800" telephone system. In the new system, telephone dispatchers at regional

offices handled all incoming calls from the public. They either answered the caller's question or routed a request for information or assistance to wildlife conservation officers and land management officers. Callers no longer had to leave messages with officers who spent the majority of their time working away from their homes.

"We're very much aware that nothing is more irritating than trying to contact someone — especially a public service agency — only to get an answering machine, which can't think and can't respond," Peter Duncan said. "In many areas, sportsmen, municipal agencies and others . . . were increasingly frustrated by their inability to contact a wildlife conservation officer."

Technological improvements aided communications, too. The agency began to upgrade its low-band frequency radio system, which first broadcast in 1960, to a microwave relay system in the early 1980s. By 1994, four of the six field regions had received microwave equipment, enhancing radio communication between the officers and their headquarters.

Changes were taking place back in Harrisburg as well. Not being an agency that received its money from taxpayers, the Game Commission was responsible for housing its operations. For years the commission had its offices in the South Office Building of the state capitol complex, but then the agency was forced to move to a rented facility on Derry Street on the outskirts of town.

Officials began planning to build a home for the Game Commission in 1983, and the agency purchased a 15-acre plot of land on Elmerton Avenue, not far off Interstate 81. Construction began in 1986, and the following year employees moved into a \$5 million headquarters complex. The building contained a 160-seat auditorium, large warehouse facilities, audio-visual and photographic production studios, and a wildlife research library. The complex also included a wing for the Ross Leffler School of Conservation, which was moved from Brockway. The new training school included a modern classroom, cafeteria, gymnasium, weight room and dormitory.

The mid-1990s also brought a change in leadership. At a special October 1994 meeting, commissioners announced that Duncan was going to retire as executive director after 11 years of service. They named Donald C. Madl, a career Game Commission employee who

had risen through the ranks, as the new director. Madl had begun as a deputy wildlife conservation officer. He was chosen to attend the Ross Leffler School of Conservation in 1962, and upon graduation he worked as a district game protector in Washington and Armstrong counties. After serving as a regional Information & Education supervisor in the Game Commission's Southwest Region, and later as the region's director, Madl was promoted and transferred to Harrisburg as deputy executive director for field operations in 1992.

As the Pennsylvania Game Commission closed the book on its first 100 years, it stood as one of the leading wildlife conservation agencies in the country. It had amassed land holdings of more than 1.3 million acres, ensuring that hunters would always have a place to enjoy their sport and the public a place to experience the natural world.

Through science and good management, and sometimes trial and error, most of the state's game populations were in far better shape at the end of the commission's centenary than they were at its birth. A variety of nongame species also benefited from Game Commission programs during the period.

Perhaps more importantly, the Game Commission's efforts enabled citizens to recognize what a precious and fragile resource wildlife is. As wildlife managers know, it's the involvement of hunters, trappers, hikers, bird-watchers and other nature enthusiasts that saves a future for all wild creatures.

Acknowledgements

SCORES OF PEOPLE contributed to the development of this book. Some directed me to references I likely wouldn't have found myself; others performed research or served as a sounding board or a porthole to the past. I am indebted to each and every one of them because without their help this undertaking would lack some of its detail and substance.

Many of the people who provided assistance were Game Commission employees and retirees. But invaluable help was also provided by employees of the state Department of Environmental Resources' Bureau of Forestry, Bureau of Water Quality Management and Bureau of Abandoned Mine Reclamation; Department of Health's Office of Communications; Pennsylvania Historical and Museum Commission's Bureau of Archives and History and State Museum; Department of Education's State Library; Department of Agriculture; Department of Labor and Industry; U.S. Fish & Wildlife Service; U.S. Department of Agriculture; Hawk Mountain Sanctuary; Pennsylvania State University; and Carnegie Museum of Natural History.

Game Commission officials, employees and retirees helped with this effort for the better part of two years. At times, some were called upon almost daily — even hourly — for information. They were asked to find documents that hadn't been opened or used in decades; to recall events that took place 25 years earlier; to clarify ambiguous legalese; and to decipher the special language of the biologists. That they greeted these tasks with enthusiasm speaks volumes of their dedication to the Game Commission and its wildlife management mission.

I want to offer a warm "thank you" to all who have helped me assemble this book from scratch. Because of them, this book covers more of Pennsylvania's wildlife conservation history than any other single source in publication. — *Joe Kosack*

References

- Alerich, Carol L., "Forest Statistics for Pennsylvania 1978 and 1989," U.S. Department of Agriculture, Forest Service, Radnor, Pa., 1993.
- "Atlas of Breeding Birds in Pennsylvania," University of Pittsburgh Press, Pittsburgh, Pa., 1992.
- "The Atlas of Pennsylvania," Temple University, University of Pittsburgh, Pennsylvania State University, Temple University Press, Philadelphia, 1989.
- Bauman, John F., and Coode, Thomas H., "In the Eye of the Great Depression, New Deal Reporters and the Agony of the American People," Northern Illinois University Press, DeKalb, Ill., 1988.
- Bristow, Arch, "Old Time Tales of Warren County," Tribune Publishing Co., Meadville, 1932.
- Brunner, D.B., "The Indians of Berks County, Pennsylvania," Eagle Book Print, Reading, 1897.
- Carson, Rachel L., "Silent Spring," Houghton Mifflin Co., Boston, 1962.
- Doddridge, Joseph, "Notes on Settlement and Indian Wars of the Western Parts of Virginia and Pennsylvania, from 1663 to 1783 . . .," Lennox Hill Publishing and Distribution Company, New York, NY, 1972.
- Dunn, Richard S. and Maples, Mary, "The Papers of William Penn, Volume Two, 1680 to 1684," University of Pennsylvania Press, 1982.
- Fletcher, Stevenson Whitcomb, "Pennsylvania Agriculture and Country Life," Pennsylvania Historical and Museum Commission, Harrisburg, 1950.
- "Game, Fish and Forest Laws of the Commonwealth of Pennsylvania," commonwealth publication, 1907.
- Goodrich, Phineas, G., "History of Wayne County," Haines & Beardsley, Honesdale, 1880.
- Goralski, Robert, "World War II Almanac: 1931-1945, A Political and Military Record," G.P. Putnam's Sons, New York, 1981.
- Harpster, John W., "Pen Pictures of Early Western Pennsylvania," University of Pittsburgh Press, 1938.
- "Hazard's Register of Pennsylvania," August 9, 1828 and June 8, 1833 issues.
- Henretta, J.E., "Kane and the Upper Allegheny," John C. Winston Co., Philadelphia, 1929.
- Hornaday, William T., "Our Vanishing Wildlife," Clark & Fritts, New York, 1913.
- International Association of Fish & Wildlife Agencies (also International Association of Game, Fish and Conservation Commissioners) conference proceedings: 1918 to 1989.
- Jordan, Terry G. and Kaups, Matti, "The American Backwoods Frontier: An Ethnic and Ecological Interpretation," The John Hopkins University Press, 1989.
- Kalbfus, Joseph H., "Dr. Kalbfus' Book: A Sportsman's Experiences and Impressions in the East and West," The Times Tribune Co., Altoona, 1926.
- Kury, Franklin L., "Natural Resources and The Public Estate," Harrisburg, 1985.

- Laycock, George, "The Hunters and The Hunted," Meredith Press, New York, 1990.
- McElvaine, Robert S., "The Great Depression," Times Books, New York City, N.Y., 1984.
- McKnight, W. J., "A Pioneer Outline History of Northwestern Pennsylvania," J.B. Lippincott Co., Philadelphia, 1905.
- "Migration Counts of Raptors at Hawk Mountain, Pennsylvania, as Indicators of Population Trends, 1934-1986," Bednarz, James C.; Klem, Daniel Jr.; Goodrich, Laurie J.; Senner, Stanley E.; *The Auk*; January 1990.
- National Association of Game Wardens and Commissioners, sixth biennial meeting minutes, 1912.
- North American Wildlife and Natural Resources Conference (also North American Wildlife Conference, American Game Conference and American Game Protective Association) proceedings: 1927 to 1993.
- "Ohio Sportsman," July 1924.
- "Paleo-Archaeological and Historical Records of Selected Pennsylvania Mammals," *Annals of Carnegie Museum pamphlet*, Carnegie Museum of Natural History, 1985.
- "Pennsylvania Colonial and Federal," Pennsylvania Historical Publishing Co., 1903.
- "Pennsylvania Game News," issues from April 1932 to December 1994.
- Pennsylvania Board of Game Commissioners, annual and biennial reports from 1902 to 1993.
- Pennsylvania Board of Game Commissioners meeting minutes, March, 1897 to October, 1994.
- "Pennsylvania Game Commission Data Book."
- Poole, Earl L., "Pennsylvania Birds," Livingston Publishing Co., Narberth, Pa., 1964.
- Rhoads, Samuel N., "The Mammals of Pennsylvania and New Jersey," Wickersham Printing Co., Philadelphia, 1903.
- Rothbard, Murray N., "American's Great Depression," Nash Publishing Corp., Los Angeles, Calif., 1963.
- Serie, Jerry, "Waterfowl Harvest and Population Survey Data," U.S. Fish & Wildlife Service, 1993.
- Shultz, William F. Jr., "Conservation Law and Administration," Ronald Press Co., New York, 1953.
- "The Simon and Schuster Encyclopedia of World War II," Simon and Schuster, New York, 1978.
- Snyder, Louis L., "The War, A Concise History 1939-1945," Simon and Schuster, New York, 1960.
- "Species of Special Concern in Pennsylvania," Pennsylvania Biological Survey, Carnegie Museum of Natural History, 1985.
- "Supplemental Environmental Impact Statement: Issuance of Annual Regulations Permitting the Sport Hunting of Migratory Birds," U.S. Fish & Wildlife Service, 1988.
- Stevens, Sylvester K., "Pennsylvania Birthplace of a Nation," Random House, New York, 1964.

- Sutton, George M., "Birds of Pennsylvania," J. Horace McFarland Co., Harrisburg, 1928.
- Thomas, Jack W. and Toweill, Dale E., "Elk of North America Ecology and Management," Stackpole Books, Harrisburg, 1982.
- Tiner, Ralph W., "Pennsylvania's Wetlands: Current Status and Recent Trends," U.S. Fish & Wildlife Service, 1990.
- Tiner, Ralph W., "Mid-Atlantic Wetlands: A Disappearing Natural Treasure," U.S. Fish & Wildlife Service, 1987.
- Tome, Philip, "Pioneer Life or Thirty Years a Hunter," originally published in 1854, reprinted by Gateway Press Inc., Baltimore, for the Lycoming County Genealogical Society in 1989.
- Trefethen, James B., "An American Crusade for Wildlife," Winchester Press, New York, for the Boone and Crockett Club, 1975.
- Vickery, Jim D., "Wilderness Visionaries," ICS Books Inc., Merrillville, Ind., 1986.
- Woods, Jerome H. Jr., "Conestoga Crossroads: Lancaster, Pennsylvania 1730-1790," The Pennsylvania Historical and Museum Commission, 1979.
- Wallace, Paul A.W., "Indians in Pennsylvania," The Pennsylvania Historical and Museum Commission, 1961.
- Warren, B.H., "Report on the Birds of Pennsylvania," Harrisburg, 1888.

Appendix A — Executive Directors



Dr. Benjamin H. Warren
Nov. 1896 – July 1898



Dr. Joseph Kalbfus
July 1898 – Aug. 1919



Seth Gordon
Aug. 1919 – July 1926
Jan. 1936 – Oct. 1948



John B. Truman
July 1926 – Nov. 1928



John Slautterback
Nov. 1928 – June 1931



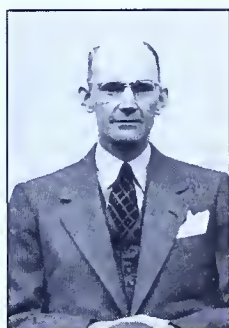
Ross L. Leffler
July 1931 – Aug. 1931



Charles G. Stone
Aug. 1931 – Jan. 1932



Ernest E. Harwood
Jan. 1932 – Oct. 1935



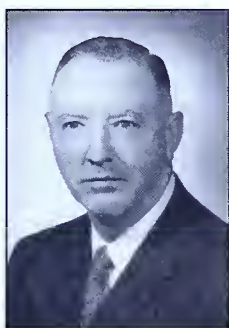
William C. Shaffer
Nov. 1935 – Dec. 1935



Thomas D. Frye
Oct. 1948 – Sept. 1953



Dr. Logan J. Bennett
Oct. 1953 – Sept. 1957



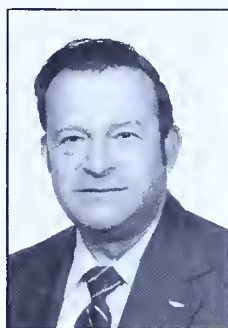
Merton J. Golden
Oct. 1957 – Aug. 1965



Glenn L. Bowers
Aug. 1965 – Dec. 1982



Peter S. Duncan
Jan. 1983 – Oct. 1994



Donald C. Madl
Oct. 1994 –

Appendix B — Timeline

- 1683 — Hunting permitted on all lands under William Penn's Charter.
First bounty offered on wolves -- 10 and 15 shillings.
- 1721 — Pennsylvania's first Game Law enacted.
- 1749 — Squirrels (red and gray) were classed as predators.
- 1858 — Unlawful to kill any "bluebird, swallow, martin or other insectivorous bird,"
or to take eggs or destroy nests statewide.
- 1867 — Last native elk killed in Pennsylvania about this time.
- 1869 — Deer season set: September 1 to December 31.
Blinds prohibited for taking upland game; baiting, trapping or snaring of
game birds outlawed.
- 1873 — Unlawful to take wild ducks or geese with swivel or punt gun.
Unlawful to discharge a firearm within a quarter mile of a passenger pigeon
nesting area, and to shoot at roosting pigeons.
Sunday hunting banned.
Bag limit set for turkeys, two per day.
Unlawful to kill fawns when in "spotted coat."
State adopts Wildlife Act, forerunner of the Game Law.
Dogs barred from running deer.
- 1875 — Killing or disturbing passenger pigeons on roosts or nesting grounds prohib-
ited.
- 1878 — First statewide waterfowl season.
- 1883 — Protection of English sparrow removed.
- 1885 — So-called "Scalp Act" passed, creating bounties for weasels, hawks, and all
but three species of owls.
- 1892 — Pheasants released in Lehigh and Northampton counties.
- 1895 — Act creating the Board of Game Commissioners.
- 1896 — Game Commissioners appointed (6).
- 1897 — Legislature grants two-year appropriation of \$800 for game administration.
Salt licks and hounds outlawed for deer hunting.
Sale of game birds killed in Pennsylvania prohibited.
Spring shooting of wild ducks prohibited.
- 1902 — Ring-necked pheasant classified as game bird.
- 1903 — Beavers protected.
- 1905 — First State Game Refuge established in Clinton County.
Black bear protected.
- 1906 — Deer first stocked.
- 1907 — Antlerless deer given complete protection.
- 1909 — Unnaturalized citizens prohibited from owning or possessing firearms.
Use of calls outlawed for turkey hunting.
- 1913 — Resident hunting license established at \$1.
Wood duck hunting banned for five years by U.S. Dept. of Agriculture.
Wild turkey hunting banned statewide for two years.
Mourning doves protected by General Assembly.
Elk purchased for stocking purposes.
- 1914 — Last passenger pigeon died at Cincinnati Zoo.
- 1918 — U.S. Migratory Bird Treaty Act passed by Congress.
- 1919 — Commission authorized to purchase land for game refuges and public
hunting grounds.

- 1920 — First State Game Lands purchased.
- 1921 — Legal methods of taking furbearers established.
Commission authorized to revoke violators' hunting licenses.
- 1923 — Landowners granted permission to kill deer for crop damage.
Herons and ravens protected.
Commission authorized to establish antlerless deer season.
First open season on elk.
Game laws codified.
Shooting banned within 150 yards of occupied building without owner's permission.
Terms of Commissioners increased from three to six years.
- 1924 — Game protectors required to pass written exam.
- 1925 — Commission given discretionary power to fix seasons and bag limits.
Bear cubs protected.
- 1927 — Size of Board of Game Commissioners increased to eight.
- 1928 — Commission began propagating pheasants.
First statewide season on antlerless deer (16 counties excepted).
- 1929 — Bow and arrow legalized for hunting game.
- 1930 — *Game News* published in mimeographed form.
- 1931 — Elk protected.
Ruffed grouse designated the state game bird.
Commission authorized to sell gas, oil and mineral rights of game lands.
- 1932 — Gypsy moth caterpillars appeared in Pennsylvania for the first time.
- 1934 — Beaver trapping season established.
U.S. Migratory Bird Hunting Stamp Act passed.
- 1935 — Use of dogs prohibited in hunting and chasing bears.
First migratory waterfowl refuge in state established at the Pymatuning Dam.
Spotlighting for big game prohibited when in possession of firearms or bows.
Congress established the Howard Nursery in Centre County.
- 1936 — Permanent game protector training school established at Brockway.
Cooperative Farm-Game Program established.
Commission authorized to sell game lands timber.
Game lands acreage topped 500,000.
- 1937 — Pennsylvania Game Law recodified.
Minimum age for hunters established at 12.
Board of Game Commissioners renamed Pennsylvania Game Commission.
Terms of Commissioners increased to eight years.
Hunters restricted to three rounds in shotgun for small game.
Bounty removed on bobcats.
Pittman-Robertson Federal Aid in Wildlife Restoration Act passed.
Pennsylvania's Pure Streams Law passed.
- 1938 — Buck season closed; only antlerless deer hunted.
- 1939 — .22 and .25 caliber rimfires outlawed for big game.
- 1942 — Hunters urged to donate deer skins for war effort.
- 1947 — Wood duck nesting box program begun.
- 1949 — \$1.25 from each resident hunter's license earmarked for habitat development, stocking of game and related uses.
- 1951 — First archery deer season.
First antlerless season under county quota system.
Bounty removed from goshawk.

- 1952 — County treasurers become antlerless deer license issuing agents.
River otters protected.
- 1953 — Mandatory license revocation required for unlawfully killing deer or bear.
Governor banned hunting Oct. 30 to Nov. 11 because of forest fire threat.
- 1954 — Bounty removed from weasels.
- 1955 — Conneaut Marsh Dam built on SGL 213.
Tinicum Wildlife Refuge established in Philadelphia.
- 1956 — \$1 from the sale of every antlerless deer license earmarked for improving deer habitat.
All hawks given protection during the months of September and October in northeastern Pennsylvania.
- 1957 — Either-sex archery deer hunting permitted without antlerless license.
- 1958 — Firearms and hunter safety education program begun.
Game protectors with special qualifications designated as land managers.
Safety Zone Program created.
- 1959 — White-tailed deer named state animal.
- 1960 — Commission's statewide radio system inaugurated.
- 1961 — First experimental deer check station established.
- 1964 — Buckshot required for deer hunting southeastern Pennsylvania.
Winter archery deer season established in sections of state.
- 1965 — Hunters required to tag turkeys.
- 1965 — Early small game season for squirrel and grouse established.
Purchase of Middle Creek Waterfowl Project approved.
Millionth acre of game lands purchased.
- 1966 — Federal Endangered Species Preservation Act passed.
Triple Trophy Award created to recognize hunters for taking deer, bear and turkey in a single year.
Commission abolished bounties.
- 1967 — Commission produced a monthly one-hour television show.
Hunters with disabilities permitted to hunt from vehicles.
Unnaturalized citizens permitted to own and possess firearms.
First statewide winter archery deer season.
- 1968 — Hunting from a motor vehicle outlawed.
Spotlighting prohibited between midnight and sunrise.
First spring gobbler hunting season.
- 1969 — Hunter safety training mandated for hunters under 16 years of age.
- 1970 — Bobcat protected.
Bear season closed for the first time in 36 years.
All hawks and owls (except great horned owls) protected.
- 1971 — Commission meetings opened to public.
Shohola Wildlife Management Area dedicated.
Forest-Game Cooperator Program established.
- 1972 — Hen Ringneck Pheasant Shooting Area established.
Triple Trophy Award program terminated.
First Game-Take Survey.
- 1973 — Quail propagation ended.
Compound bows legalized.
Bear check stations established.
- 1974 — First muzzleloader deer season held for three days on 37 game lands.
- 1977 — Steel shot required to hunt waterfowl in certain areas of state.
Winter feeding policy calls for feeding under only extreme conditions.

- 1978 — Commission launches Endangered Species Program.
- 1979 — Allegheny County established as a Special Regulations Area.
Pennsylvania Biological Survey formed to inventory and assess plants and animals.
- 1980 — Protection removed for bear cubs.
Deer, bear and woodchuck hunters required to wear fluorescent orange.
- 1981 — Turkey and waterfowl propagation ended.
Quail season closed for the first time since 1953.
First bear hunting license established; first allocation was 125,000 licenses.
Four peregrine falcons successfully hacked in Philadelphia.
Deer check stations discontinued. Agency begins surveying deer camps and meat processors.
- 1982 — All first-time hunters required to take hunter education course.
Otter reintroduction project begun.
- 1984 — Hunter education program certifies one millionth student.
- 1986 — Commission training school moved from Brockway to Harrisburg.
- 1987 — Game and Wildlife Code replaced Game Law of 1937.
New Commissioners limited to one 8-year term.
Hunters required to wear either an orange hat or vest while hunting big game.
Hunters permitted to take two deer in Southeast Special Regulations Area with appropriate licenses.
- 1988 — Lead shot banned for waterfowl hunting statewide.
Hunters permitted two deer statewide with appropriate licenses.
Fluorescent orange requirements for big game hunters increased to a minimum of 250 square inches.
- 1989 — Bear license allocation eliminated.
- 1990 — Antlerless deer hunting expanded on farms enrolled in new Deer Damage Area program designed to address crop damage problems.
- 1991 — Southeast Special Regulations Area enlarged to include all of Bucks, Chester, Delaware, Montgomery and Philadelphia counties.
- 1992 — Elk census done completely from the air.
Fluorescent orange mandated for fall turkey and small game hunters.
First early hunt for non-migrating Canada geese.
- 1993 — Fluorescent orange required for spring gobbler hunters.
Antlerless deer license required of all hunters who wish to take antlerless deer (flintlock season excepted).
First late hunt for non-migrating Canada geese.
Elk herd topped 200 for first time in 20th century.
- 1994 — Either-sex hunting permitted during buck season on deer-damage farms statewide.
- 1995 — Game Commission celebrated 100th anniversary.

Appendix C — Deer and Bear Harvests, 1915-1994

<u>Year</u>	<u>Antlered Harvest</u>	<u>Antlerless Harvest</u>	<u>Total Deer</u>	<u>Bear Harvest</u>
1915	1,287	Closed	1,287	188
1916	1,722	Closed	1,722	435
1917	1,725	Closed	1,725	368
1918	1,754	Closed	1,754	387
1919	2,939	Closed	2,939	472
1920	3,300	Closed	3,300	420
1921	4,840	Closed	4,840	510
1922	6,115	Closed	6,115	563
1923	6,452	8	6,460	500
1924	7,778	126	7,904	929
1925	7,287	1,029	8,316	470
1926	11,646	1,295	12,941	660
1927	14,374	Closed	14,374	321
1928	Closed	25,097	25,097	427
1929	22,822	Closed	22,822	447
1930	20,115	5,979	26,094	707
1931	24,796	70,255	95,051	501
1932	19,724	Closed	19,724	216
1933	20,480	Closed	20,480	586
1934	21,137	Closed	21,137	Closed
1935	23,802	46,668	70,470	402
1936	18,084	Closed	18,084	356
1937	39,347	Closed	39,347	537
1938	Closed	171,662	171,662	384
1939	49,106	14,581	63,687	535
1940	40,995	145,580	186,575	524
1941	19,271	Closed	19,271	593
1942	30,860	Closed	30,860	149
1943	23,931	14,951	38,882	307
1944	28,411	Closed	28,411	295
1945	24,575	1,085	25,660	366
1946	31,110	4,209	35,319	325
1947	31,475	63,568	95,043	569
1948	33,608	Closed	33,608	388
1949	46,602	84,121	130,723	411
1950	23,302	31,515	54,817	354
1951	34,582	37,952	72,534	429
1952	27,164	37,829	64,993	261

Year	Antlered Harvest	Antlerless Harvest	Total Deer	Bear Harvest
1953	37,384	16,252	53,636	303
1954	40,915	Closed	40,915	403
1955	45,044	41,111	86,155	363
1956	41,921	Closed	41,921	335
1957	49,254	55,862	105,116	294
1958	46,738	65,187	111,925	439
1959	38,270	51,902	90,172	296
1960	38,776	29,887	68,663	392
1961	38,705	17,327	56,032	237
1962	42,266	30,647	72,913	554
1963	48,204	36,212	84,416	280
1964	49,231	41,903	91,134	526
1965	65,150	34,638	99,788	347
1966	58,722	60,031	118,753	605
1967	78,268	66,147	144,415	568
1968	62,038	79,836	141,874	218
1969	59,923	56,761	116,684	295
1970	53,350	46,336	99,686	Closed
1971	55,602	48,625	104,227	488
1972	62,633	44,582	107,215	370
1973	70,316	56,575	126,891	299
1974	70,689	54,963	125,652	223
1975	71,986	66,209	138,195	388
1976	64,084	57,949	122,033	605
1977	74,879	71,199	146,078	Closed
1978	61,698	59,543	121,241	Closed
1979	58,864	55,930	114,794	736
1980	73,196	62,281	135,477	921
1981	73,322	75,208	148,530	819
1982	72,113	66,109	138,222	588
1983	70,233	66,060	136,293	1,529
1984	76,500	63,680	140,180	1,547
1985	76,097	85,331	161,428	1,029
1986*	150,359	149,655	300,014	1,362
1987*	157,547	177,242	334,789	1,556
1988*	163,106	218,293	381,399	1,614
1989*	169,795	218,806	388,601	2,213
1990*	170,101	245,460	415,561	1,200
1991*	149,598	238,417	388,015	1,687
1992*	163,159	198,065	361,224	1,589
1993*	165,214	243,343	408,557	1,790

* Deer harvests figures were changed from reported to calculated harvests, which accounted for reporting rates.

Index

A

Abrogation laws 48, 118
 Acreage Reserve 126
 Allegheny National Forest 209
 Alt, Gary 179-180, 200
 Appropriations 25, 28-29, 33
 Atlantic Flyway 165, 183
 Auxiliary game refuges 54, 56

B

Bailey, Vernon 60-61
 Bavin, Clark R. 191-192
 Bear 1
 hunting 114, 150-151, 224
 closures 151, 157
 cub law 150, 179-180
 management 37, 63-64, 150,
 154-158, 179-180, 199-200
 legal challenges 156-157, 180
 Beaver 1, 3-4, 8, 84-85
 management 50, 208
 trapping 3, 85
 Beck, Abraham R. 17
 Beck, J. August 77
 Becker, Gary 175
 Behel, John 153
 Bell, Tom 151
 Bellrose, Frank C. 143
 Bennett, Logan J. 131, 135, 219
 Berrier, Joe 29-30
 Biddle, Nicholas 108, 114, 119
 Blair County Game, Fish and
 Forestry Association 58
 Blue jay 160
 Blue Mountain 7, 67, 79, 126
 Board of Game Commissioners,
 creation of 24
 Bobcat 2, 67, 78, 81, 137
 Bonus system 179, 196
 Bounties 5, 7, 13, 17, 21,
 42, 48-49, 67, 68, 78,
 80, 101, 110, 126, 137-138
 See also Predator control

Bowers, Glenn L. 117, 124, 138,
 146, 157, 158, 179, 219
 Brainworm 159
 Brockway 21
 Brookston 17
 Brumbaugh, Martin G. 54
 Brunner Bill 104
 Brunner, Charles H. Jr. 104
 Buckshot 35
 Buffalo 1, 10

C

Cade, Tom 161
 Cameron County Soil and Water
 Conservation Distric 158
 Campbell, E.W. 31
 Car searching 88-89
 Caribou 1
 Carson, Rachel 134
 Casselman River 209
 Check stations 147-148, 155
 Chesapeake Bay 2, 206
 Chester 4
 Chestnut blight 46, 50
 Chief game protector 24, 26
 Chief Pontiac 8
 Civil Works Administration 93
 Civilian Conservation Corps
 93, 105
 Clean Air Act 164
 Clean Streams Act 141
 Clean Water Act 164
 Coffin, Francis H. 77
 Commercial wildlife trade 25,
 30, 191
 Conneaut Marsh 17, 123, 136,
 163, 166
 Cooperative Farm-Game Refuge
 Program
 See Farm-Game program
 Cooperative Forest Game Program
 See Forest Game Program
 Cornell University 161

Coudersport 107
Coulter, Henry W. 70
Council for Civil Defense 128
Coyote, eastern 81, 188, 211
Croft, Don 128, 170
Crow 67, 128, 160

D

Dam Safety and Encroachments Act
184

Day, Albert M. 102, 103, 122

DDT.

See Pesticide pollution

Deer Damage Area 198

Deer, English fallow 47

Deer, mule 64

Deer, white-tailed

antlerless allocations 62, 118,
147, 148, 149, 173, 176-177,
196

carrying capacity 75, 120, 147,
172, 199

crop damage 46, 58, 59, 72,
99, 106, 198

density goals 120, 173, 196-199

habitat changes 36, 60, 106,
115, 199

herd management 58, 59-60,
74, 75, 106-107, 115-120, 146-
149, 171-173, 176-179

hunting 14, 97, 107, 119, 197

antlered 36, 46, 47, 58,
60, 63, 107, 119, 149,
171, 224

antlerless 36, 47, 59-63,
71, 74, 115, 119, 178, 224

archery 114, 119-120, 173

muzzleloader 173-174

hunting regulations 6, 7, 15, 20,
25, 36, 46, 58, 179, 197

stockings 35, 47

suburban 178, 198

winter mortality 60, 61, 75,
106, 117, 176

Delaware River 1, 2, 7, 142,
162, 209

Dents Run 158

Dixon, Jeremiah 1

Dixon, Ruby 128

Donaldson, H.J. 70

Dove, mourning 109

Drakula, Dave 167

Drehersville 67

duck stamp

See Federal waterfowl hunting
license

Ducks

See Waterfowl

Ducks Unlimited 98, 185, 205,
207

Duff, James H. 106, 113

Duncan, Peter S. 182, 190,
206, 212, 219

Duncannon 8

E

Eagle, bald 2, 136, 162-163,
185-186, 210

Earle, George H. 80, 88

East Cowley Run 50

East Dallas 128

East Stroudsburg University
163, 186

Edge, Rosalie 79

Eisenhower, Dwight D. 131

Elk 1, 4, 14, 16

hunting 11, 64, 82, 180
management 44-46, 64, 158-
160, 180-182, 200-201

Elk rock 11

Ellis, William S. 70

Emporium 158

Endangered Species Conservation
Act 137

Endangered Species Fund 185

Endangered Species Preservation Act
137

Environmental protection 5, 163

Erie National Wildlife Refuge 123

F

Farm-Game program 94, 105,
106, 194

Farmland habitat loss/degradation

142, 168, 169, 203
 Federal waterfowl hunting license
 83-84, 102, 166, 184
 Filkosky, Jim 174
 Fine, John S. 119, 128
 Firearms regulations 38,
 114, 148, 151
 Fisher, John S. 67, 70
 Fisher 2
 Flexer, Ed 128
 Fluorescent orange 129, 153,
 174, 191, 202
 See also Hunting safety
 Food & Cover Corps 105, 124-125,
 192
 Forbes, Tom 119
 Forest Game program 171, 194
 Fort Beversreede 2
 Fox, red & gray 48, 67, 78,
 81, 101, 110, 127, 138
 Franklin 142, 147
 French and Indian War 8
 French and Pickering Creek Land
 Conservation Trust 207
 Frye, Thomas 113, 128, 219
 Fund for Animals 156, 180
 See also Bear: management: legal
 challenges
 Fur trade 2, 4, 11
 Furbearer management 187-188
 Furst, S. Dale Jr. 112
 Furtakers license, creation 188

G

Gabrielson, Ira 100, 102, 139
 Game & Wildlife Code 25, 51, 71,
 92, 152, 190-191
 violations & fines 28, 91, 151,
 174, 190
 Game lands
 See also Game refuges
 acquisition 54, 55-57, 141,
 170, 185, 192, 201, 206-207
 management 57, 93, 94, 104-
 106, 124, 126, 192
 See also Food & Cover Corps
 timber sales 94, 99, 104,

170, 194
 Game laws
 See Game & Wildlife Code
 Game propagation 33, 42
 Game refuges 33-35, 50, 105.
 See also Auxiliary game refuges
 Game stocking
 See Wildlife introductions
 See also individual species
 Game-Take Survey 169, 188
 Ganster, A. Clinton 112
 Garland, Sam 41-43
 George, John L. 134, 159
 Gerstell, Richard 81, 82, 137
 Golden, Merton J. 135, 151, 219
 Goose, Canada
 See Waterfowl
 Gordon, Seth 41, 50, 55, 66, 95,
 98, 104, 113, 218
 Goshawk 48, 68, 78, 81, 110,
 126, 160
 Grabowicz, Greg 206
 Great Depression 63, 74, 78, 93
 Greater prairie chicken 2, 15
 Grinnell, George Bird 22
 Grouse, ruffed 1, 26, 55, 63
 Grouse, sharp-tailed 82, 121

H

Habitat improvement 50, 51, 57-58,
 81, 85, 93-94, 105-106, 118,
 123, 125, 142-143, 159, 171, 181,
 192-194, 205-206, 208
 See also Game lands: management
 Hacking 161-162, 185-187, 210-
 211
 Haldeman Island 185, 210
 Hannum, John B. 180
 Harrisburg 10, 41, 104, 161, 210,
 212
 Hartman, Fred 167, 168
 Harwood, Ernest E. 78, 83,
 87, 93, 218
 Hastings, Daniel H. 24
 Hawk, broad-winged 80, 160
 Hawk, Cooper's 68, 79-80, 160
 Hawk Mountain Sanctuary 79,

126, 161
 Hawk, red-shouldered 68, 80, 160
 Hawk, red-tailed 68, 80, 160
 Hawk, rough-legged 68, 160
 Hawk, sharp-shinned 48, 68, 79–80, 160
 Hawkins, William G. 14
 Hayden, Arnold 211
 Headquarters complex 212
 Heebner, Charles 24
 Herring, Glenn 175
 Hicks Run 45, 158
 Hillsville 32
 Hoffman, Lantz A. 189
 Holland, Ray B. 69
 Hoover, Herbert 83
 Hornaday, William 19, 34
 Houk, Seeley 32
 House Game and Fisheries Committee 190
 Howard Nursery 125, 193
 Howard Siding 45
 Hunter-Trapper Education
See Hunting safety
 Hunters' and Anglers' Protective Association 41
 Hunting license 59, 78, 102
 fee changes 56, 71, 106, 191
 Hunting license, first resident 40–44
 Hunting safety 36, 70–71, 88, 110–111, 129–130, 153, 174, 189, 202

I

Indian tribes 2–4, 7, 8
 International Association of Game, Fish and Conser 122
 International Leather Workers Union 99
 Izaak Walton League 75, 98

J

Jacklighting 14
 Jacobs, Jim 16
 James, Mel 85
 Joint Legislative Air and Water Pollution Control 182

K

Kalbfus, Joseph 26–27, 29–30, 31, 34, 36, 40, 49, 54–55, 218
 Kane 17, 19
 Kane Fish & Game Club 130
 Keith, William 6
 Kelly, E.W. 55
 Kelly, John 10
 Kennedy, William M. 24, 30
 Kestrel 81
 Kettle Creek 11, 209
 Kingfisher 160
 Kirkpatrick, Gerald 190
 Kunkle, George 24
 Kury, Franklin L. 163

L

Lake Arthur 211
 Land and Water Conservation Act
 See Project 500
 Land managers 126, 187, 204
 Lang, Lincoln 148, 203
 Latham, Roger 116–117, 119, 121, 129, 137
 Law enforcement 26.
 See also Game & Wildlife Code
 deputy officers 26, 31, 174
 officers 24, 29, 31–32, 44, 51–53, 71–72, 90, 99, 101, 112, 128, 130, 151–152, 175, 191, 204
 training 52, 91, 100, 130
 programs 31, 92, 191, 211
 Leffler, Ross L. 60, 61, 74, 77, 85, 91, 99, 106, 111, 123, 130, 218
 Leopold, Aldo 81, 87
 Letterkenny Army Depot 204
 Lewisburg 10
 Lindzey, James 150, 154, 157
 Lititz 17
 Loyalsock Creek 108, 209
 Luttringer, Leo A. 75, 89, 92, 104
 Lyme disease 178
 Lynx 2

M

Madl, Donald C. 212, 219

Mahoning Creek 32
 Market hunting 10, 15
 See also Commercial wildlife trade
 Marten 2
 Mason, Charles 1
 Matching Aid to Restore States'
 Habitat 185
 Maximum sustained yield plan 171
 McCaleb, William B. 70
 McHugh, Joseph 52
 McKnight, W.J. 12
 Meadville 123
 Merlin 160
 Middle Creek Wildlife Management
 Area 139, 143, 162, 166
 Minimum deer population index
 148
 Mining 103, 139, 141, 164, 209
 Mink 11, 48, 67
 Monogahela River 1
 Moore, Frank 24
 Moose 1
 Motorola Corporation 129
 Mount Johnson Island 136
 Mountain lion 1, 13, 17
 Muller, Adolph 77, 83, 109
 Murdocco, Jim 32

N

National Audubon Society 136, 163
 National Environmental Policy Act
 164
 National Fish and Wildlife Founda-
 tion 207
 National Rifle Association 130
 National Wild Turkey Federation 207
 National Wildlife Federation 137
 National Youth Administration 94
 Nature Conservancy 207
 New Bloomfield 113
 New Jersey Division of Fish, Game
 and Wildlife 210
 New Sweden 2, 3
 Nonresident hunting license, creation
 of 31
 North American Waterfowl Man-

agement Plan 184
 North Central PA Economic
 Development District 158
 Northern Allegheny Conservation
 Association 207
 Northern harrier 68, 160

O

Oil City 17
 Operation Scarlift 141
 Osprey 2, 163, 186, 210
 Owl, barn 21
 Owl, barred 160
 Owl, great horned 48, 80, 110,
 138, 160, 161
 Owl, saw-whet 21
 Owl, screech 21
 Owl, snowy 80, 160

P

Papsone, Joseph 38
 Partners for Wildlife 205
 Partridge, chukar 82
 Partridge, Hungarian 65, 107, 121
 Pearson, T. Gilbert 68
 Penn, William 4-5
 Pennsylvania Federation of Sports-
 men's Clubs 81, 112
 Pennsylvania Fish and Game
 (Protective) Association 24
 Pennsylvania Fish and Wildlife
 Database 187
 Pennsylvania Game Commission
 Training School
 See Training School
 Pennsylvania Grouse Association
 192
 Pennsylvania National Guard 193
 Pennsylvania state agencies
 Conservation Corps 192
 Dept. of Environmental Resources
 159, 181, 187, 201, 206
 Dept. of Highways 123
 Fish Commission 187
 Pennsylvania State Archery Associa-
 tion 119
 Pennsylvania State Sportsmen's

Association 22, 23, 33
 Pennsylvania State University
 87, 159
 Cooperative Extension 149, 206
 Cooperative Wildlife Research
 Unit 87, 107, 150, 154
 Pennypacker, Samuel W. 31
 Penrose, C.B. 30
 Penrose, H.A. 22
 Peregrine falcon 68, 136, 160,
 161, 209
 Peregrine Fund 161, 209
 Pesticide pollution 103, 133–135, 161
 Pheasant, Reeves 82
 Pheasant, ring-necked
 management 49–50, 63, 168,
 182, 203
 propagation 49, 66, 121,
 169, 203
 Pheasant, Sichuan 203
 Pheasants Forever 205
 Philadelphia 6, 10, 21, 107, 162
 Phillips, John M. 21, 22, 23, 33,
 41, 56, 60, 69–70, 84, 85, 132
 Pigeon, passenger 2, 17–19
 Pinchot, Gifford 69–70, 74, 76, 88
 Pine Creek 209
 Pinkerton Detective Agency 32
 Pittman-Robertson 95, 102, 207
 Pittsburgh 10, 107, 209
 Planting for Wildlife program 193
 Plumb, Henry B. 13
 Poconos 12
 Pole traps 161
 Porcupine 67
 Pough, Richard 79–80
 Powell, John O. 72
 Predator control 21, 34, 48, 67,
 94, 110, 128.
 See also Bounties & Raptor shooting
 Preserve
 See Game refuges
 Presque Isle 136
 Project 500 139, 141, 183
 Project 70 139
 Project WILD 188
 Puglisi, Mike 163

Punt gun 15, 20
 Pure Streams Act 103
 Pure Streams Law 141
 Pymatuning Marsh 17
 Pymatuning Reservoir
 See Pymatuning Wildlife Manage-
 ment Area
 Pymatuning Wildlife Management
 Area 84, 99, 136, 162

Q

Quail, bobwhite 26, 37, 166
 Quail, Gambel's 50
 Quail, Mexican 50, 63, 81
 Quay, Matthew 23

R

Rabbit, cottontail
 management 63, 85, 109–110,
 124
 Rabbit farm program 110
 Rabbit, San Juan 121
 Rabies 127–128, 188
 Racca, Rocco 32
 Raccoon 1, 63, 188
 radio network 128, 174, 212
 Raptors 67, 78
 protection 68, 79–81, 126–127,
 160
 See also Hawk Mountain Sanctuary
 shooting 21, 67, 68
 Reading 210
 Red hat days 129
 Reid, Kenneth A. 97
 Reis, Jared M.B. 77
 Resident aliens
 See Unnaturalized citizens
 Richard King Mellon Foundation
 185
 Ridgway 21
 River otter 1, 8, 126, 208–209
 Roadside Menagerie Act 90
 Roberts, Harvey 138, 149, 173
 Rocky Mountain Elk Foundation
 201, 207
 Rolling Rock Club 103
 Roosevelt, Franklin D. 83

Roosevelt, Theodore
 22, 34, 42, 69
 Ross Leffler School of Conservation.
See Training School
 Ruffed Grouse Society 192
 Rymon, Larry 186

S

Safety zone 94, 151
 Safety Zone program 194
 Saybrook 55
 Scalp Act 21
 Scent post survey 188
 Schuylkill River 2
 Scotia Range 141
 Scranton, William W. 142
 Seneca Highlands Conservancy 207
 Serfass, Tom 209
 Service Corps
See Food & Cover Corps
 Shafer, Raymond P. 153, 160
 Shaffer, William C. 87, 219
 Shaner, Elmer E. 22
 Shank, Clayton 119
 Shapp, Milton J. 161, 184
 Sheffield 17
 Shell tax 83
See also Federal waterfowl hunting
 license
 Shohola Wildlife Management Area
 141, 185, 210
 Sitlinger, Jake 185
 Slautterback, John J. 62, 76, 218
 Small Marsh program 123
 Snowshoe hare 2, 63
 Sober, Coleman K. 24, 25, 30–31
 Soil Bank 126
 Songbird protection 15, 20, 28, 68
 Special Regulations Area 148, 179
 Speer, John S. 70
 Sportsmen Policing Our Ranks
 Together 175
 Sproul State Forest 34
 Sproul, William C. 50, 54
 Squirrel bounty 7
 Squirrel, fox 63
 St. Marys 16

Stackpole, Harry C. 77
 State forest 29, 34, 55, 57
 Stearns, Irving A. 24
 Stevens Amendment 166
 Stone, Charles G. 76, 218
 Streambank Fencing program 206
 Stroudsburg 8
 Strouphar, Charlie 162
 Stuart, Edwin S. 36, 38
 Surface Mining Control and
 Reclamation Act 164
 Susquehanna River 19, 136, 142,
 161, 166, 185, 206, 209

T

Tener, John K. 42
 Thomas, Francis 52
 Thornburgh, Richard L. 187, 191
 Tinicum Island 2
 Tioga-Hammond Reservoir 211
 Tionesta Creek 209
 Toll-free phone system 211
 Tome, Philip 11, 13
 Training School 91, 99, 100,
 130, 212
 Trend index 148
 Truman, John B. 60, 62, 218
 Trust For Public Lands 207

U

U.S. Land and Water Conservation
 Act 207
 U.S. Migratory Bird Conservation
 Act 83
 U.S. Migratory Bird Conservation
 Commission 123
 U.S. Migratory Bird Treaty Act 83
 United States agencies
 Biological Survey 44, 60, 68, 84
 Dept. of Agriculture 83, 87
 Dept. of Interior 137, 156, 184
 Environmental Protection Agency
 161, 206
 Fish & Wildlife Service 100, 102,
 109, 122, 136, 162, 166, 203, 205
 Forest Service 44, 64, 199
 Soil Conservation Service 205, 206

University of Pennsylvania 87
 Unnaturalized citizens 31, 38

V

Vulture, turkey 160

W

Wakefield, Gary C. 151
 Walcott, Frederick C. 69
 Wallace, George J. 133
 Warm-season grasses 205
 Warren, Benjamin H. 19, 25, 218
 Water pollution 14
 regulation 29, 103, 141
 Water Pollution Control Act 124
 Waterfowl 2, 15
 management 19, 26, 28, 82-84,
 102-103, 123, 142, 164-166, 183
 nontoxic shot 143, 166
 propagation 102, 122, 143,
 166-167
 Waterfowl Management Stamp 184
 Waterfowl USA 207
 Waynesboro 8
 Weasel 48, 67, 78, 81
 Wessel, Charles 82
 Western Pennsylvania Conservancy
 207
 Westfall, E.B. 24, 26
 Wetlands 122
 acquisition 142, 185
 loss 15, 102, 122, 142, 165, 183
 management 57, 103, 123, 184,
 205-206, 208
 Wight, Howard M. 85
 Wild Resource Conservation Fund
 187
 Wild turkey 1
 management 26, 120, 144-146,
 167-168, 202
 trap-and-transfer 37, 63,
 144, 167, 202
 propagation 86, 108, 121, 144
 Wildlands Conservancy 207
 Wildlife introductions 33, 35, 37,
 44, 49, 50, 64, 65, 81-82,
 106, 107-108

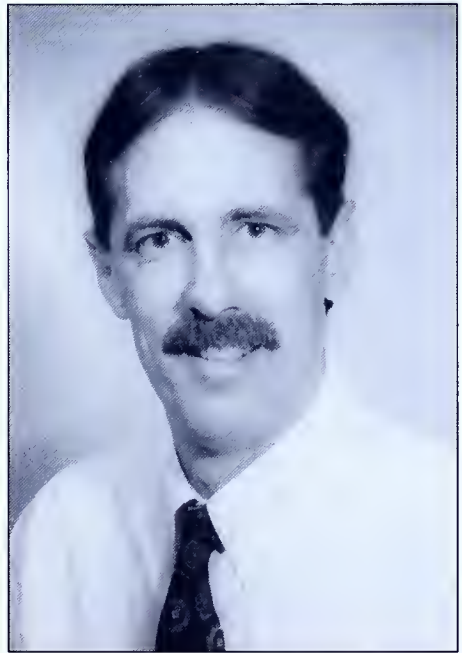
William Penn Foundation 210
 Wilson, Frank 72
 Wilson, Woodrow 83
 Winslow Hill 201
 Winter feeding 50, 57, 63, 99,
 106, 138-139
 Wolf, timber 1, 5-6, 8, 12-13, 16
 Wolverine 2
 Wood duck nesting 102, 105, 123
 Woodcock 26, 203
 Worden, James H. 24, 26, 29
 Working Together for Wildlife
 program 163, 187
 Works Progress Administration
 93, 105, 123
 Wunz, Gerald 144, 168
 Wykoff Run 150
 Wysox 136, 161

Y

Youghiogheny River 209

bounties for predators such as foxes, bobcats, hawks and owls. Birds of prey, once shot by the hundreds of thousands, are now protected. Modern restoration projects have returned several native wildlife species to their former haunts — animals such as river otters, bald eagles, ospreys and peregrine falcons that were nearly driven from the state by pollution.

Pennsylvania Game Commission 1895-1995 captures the times and events, the successes and failures, that have shaped the state's wildlife management program. Through its words and pictures, the book brings to life the relationships that have developed between Pennsylvanians and their natural world.



Joe Kosack is an information specialist with the PA Game Commission.

Twelve chapters and more than 60 black and white photographs, plus three appendices and an index.

Jacket design & text by J. Scott Rupp

Published by Pennsylvania Game Commission
2001 Elmerton Avenue
Harrisburg, PA 17110-9797

100 Years of Wildlife Conservation

The Pennsylvania Game Commission has been at the forefront of wildlife management for 100 years. Through the agency's efforts, and with the help of hunters and other nature enthusiasts, wildlife was rescued from the dismal future to which it seemed consigned at the turn of the 20th century.

This book is more about wildlife and people than it is about a governmental agency. It examines the management of Pennsylvania's birds and mammals — and those responsible for shaping that management — from colonial times up through the middle of the 1990s. It's a must-read for anyone interested in the natural world, and for any student of commonwealth history.